

**Table 1.** *Staphylococcus aureus* virulence genes identified by nematode killing assay.

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 09697         | SAV0006    | 105             |                 |                 |                 |
| ΦNE 01964         | SAV0007    | 100             |                 |                 |                 |
| ΦNE 02761         | SAV0008    | 119             |                 |                 |                 |
| ΦNE 04440         | SAV0008    | 94              |                 |                 |                 |
| ΦNE 06169         | SAV0010    | 169             |                 |                 |                 |
| ΦNE 13102         | SAV0013    | 86              | 100             |                 |                 |
| ΦNE 04509         | SAV0013    | 118             |                 |                 |                 |
| ΦNE 03581         | SAV0017    | 105             |                 |                 |                 |
| ΦNE 02689         | SAV0017    | 125             |                 |                 |                 |
| ΦNE 11611         | SAV0022    | 67              | 79              |                 | 96              |
| ΦNE 04297         | SAV0023    | 84              |                 |                 | 100             |
| ΦNE 00158         | SAV0024    | 90              |                 |                 |                 |
| ΦNE 00007         | SAV0031    | 100             |                 |                 |                 |
| ΦNE 06084         | SAV0071    | 119             |                 |                 |                 |
| ΦNE 02921         | SAV0082    | 113             |                 |                 |                 |
| ΦNE 01632         | SAV0082    | 89              |                 |                 |                 |
| ΦNE 02710         | SAV0084    | 125             |                 |                 |                 |
| ΦNE 03605         | SAV0084    | 65              |                 |                 |                 |
| ΦNE 11469         | SAV0085    | 104             |                 |                 |                 |
| ΦNE 07569         | SAV0086    | 100             |                 |                 |                 |
| ΦNE 02897         | SAV0087    | 100             | 90              | 80              |                 |
| ΦNE 01747         | SAV0088    | 100             |                 |                 |                 |
| ΦNE 04416         | SAV0089    | 65              | 100             |                 |                 |
| ΦNE 04522         | SAV0093    | 118             |                 |                 |                 |
| ΦNE 08742         | SAV0094    | 86              | 104             |                 |                 |
| ΦNE 01578         | SAV0094    | 104             |                 |                 |                 |
| ΦNE 04331         | SAV0096    | 84              |                 |                 |                 |
| ΦNE 04701         | SAV0100    | 100             |                 |                 |                 |
| ΦNE 03975         | SAV0100    | 90              |                 |                 |                 |
| ΦNE 01752         | SAV0101    | 42              | 100             |                 |                 |
| ΦNE 01586         | SAV0101    | 79              |                 |                 |                 |
| ΦNE 12459         | SAV0102    | 90              |                 |                 |                 |
| ΦNE 04675         | SAV0103    | 100             |                 |                 |                 |
| ΦNE 03889         | SAV0104    | 95              |                 |                 |                 |
| ΦNE 09435         | SAV0105    | 91              |                 |                 |                 |
| ΦNE 01885         | SAV0106    | 95              |                 |                 |                 |
| ΦNE 05474         | SAV0107    | 105             |                 |                 |                 |
| ΦNE 05622         | SAV0107    | 105             |                 |                 |                 |
| ΦNE 04993         | SAV0108    | 85              | 75              | 56              | 100             |
| ΦNE 02760         | SAV0109    | 119             |                 |                 |                 |
| ΦNE 02284         | SAV0110    | 79              | 100             |                 |                 |
| ΦNE 03637         | SAV0111    | 100             |                 |                 |                 |
| ΦNE 11086         | SAV0112    | 82              | 50.9            |                 |                 |

| Mutant no. | ORF      | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|----------|----------|----------|----------|----------|
| ΦNE 00251  | SAV0113  | 75       |          |          |          |
| ΦNE 05329  | SAV0113  | 100      |          |          |          |
| ΦNE 12605  | SAV0114  | 73       | 93       |          |          |
| ΦNE 04101  | SAV0115  | 65       | 75       | 92       | 100      |
| ΦNE 05598  | SAV0116  | 105      |          |          |          |
| ΦNE 09972  | SAV0117  | 105      |          |          |          |
| ΦNE 00750  | SAV0118  | 80       |          |          |          |
| ΦNE 04431  | SAV0119  | 100      |          |          |          |
| ΦNE 04528  | SAV0120  | 118      |          |          |          |
| ΦNE 03981  | SAV0121  | 95       |          |          |          |
| ΦNE 00568  | SAV0121  | 85       |          |          |          |
| ΦNE 06601  | SAV0122  | 166      |          |          |          |
| ΦNE 00693  | SAV0123  | 85       |          |          |          |
| ΦNE 02682  | SAV0124  | 125      |          |          |          |
| ΦNE 00114  | SAV0125  | 95       |          |          |          |
| ΦNE 02811  | SAV0126  | 119      |          |          |          |
| ΦNE 00797  | SAV0128  | 100      |          |          |          |
| ΦNE 02789  | SAV0129  | 125      |          |          |          |
| ΦNE 11103  | SAV0130  | 86       | 49.1     |          |          |
| ΦNE 01699  | SAV0130  | 105      |          |          |          |
| ΦNE 00235  | SAV0131  | 95       |          |          |          |
| ΦNE 00540  | SAV0132  | 95       |          |          |          |
| ΦNE 02728  | SAV0133  | 113      |          |          |          |
| ΦNE 01938  | SAV0134  | 105      |          |          |          |
| ΦNE 00707  | SAV0134  | 70       |          |          |          |
| ΦNE 00256  | SAV0135  | 95       |          |          |          |
| ΦNE 04115  | SAV0136  | 89       |          |          |          |
| ΦNE 04163  | SAV0137  | 105      |          |          |          |
| ΦNE 04768  | SAV0139  | 100      |          |          |          |
| ΦNE 04556  | SAV0140  | 118      |          |          |          |
| ΦNE 04840  | SAV0141  | 100      |          |          |          |
| ΦNE 03501  | SAV0142  | 105      |          |          |          |
| ΦNE 04512  | SAV0143  | 118      |          |          |          |
| ΦNE 00009  | SAV0144  | 106      |          |          |          |
| ΦNE 06375  | SAV0145  | 153      |          |          |          |
| ΦNE 06399  | SAV0147* | 169      |          |          |          |
| ΦNE 01814  | SAV0148  | 100      |          |          |          |
| ΦNE 10032  | SAV0149  | 105      |          |          |          |
| ΦNE 05254  | SAV0150  | 100      |          |          |          |
| ΦNE 05138  | SAV0151  | 100      |          |          |          |
| ΦNE 02051  | SAV0152  | 105      |          |          |          |
| ΦNE 11309  | SAV0153  | 118      |          |          |          |
| ΦNE 05448  | SAV0154  | 53       | 10       | 49       | 52       |
| ΦNE 05573  | SAV0155  | 100      |          |          |          |
| ΦNE 11624  | SAV0156  | 63       | 62       |          |          |

| Mutant no. | ORF      | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|----------|----------|----------|----------|----------|
| ΦNE 04851  | SAV0157  | 40       | 55       | 71       | 43       |
| ΦNE 03492  | SAV0158  | 68       | 55       | 62       | 87       |
| ΦNE 04856  | SAV0159  | 75       | 95       |          |          |
| ΦNE 00618  | SAV0160  | 70       |          |          |          |
| ΦNE 01957  | SAV0161  | 26       | 75       | 25       |          |
| ΦNE 01866  | SAV0162  | 89       |          |          |          |
| ΦNE 05283  | SAV0163  | 10       | 35       | 67       | 75       |
| ΦNE 04700  | SAV0164  | 100      |          |          |          |
| ΦNE 11092  | SAV0165  | 132      |          |          |          |
| ΦNE 04350  | SAV0166  | 94       |          |          |          |
| ΦNE 02715  | SAV0167  | 125      |          |          |          |
| ΦNE 03273  | SAV0168  | 63       | 95       |          |          |
| ΦNE 05237  | SAV0171  | 95       |          |          |          |
| ΦNE 02635  | SAV0172  | 105      |          |          |          |
| ΦNE 03639  | SAV0173  | 112      |          |          |          |
| ΦNE 05563  | SAV0174  | 105      |          |          |          |
| ΦNE 00698  | SAV0175  | 100      |          |          |          |
| ΦNE 02233  | SAV0176  | 74       | 100      |          |          |
| ΦNE 07526  | SAV0177  | 70       | 93       |          |          |
| ΦNE 00016  | SAV0179  | 75       |          |          |          |
| ΦNE 03096  | SAV0180  | 56       | 75       | 92       | 100      |
| ΦNE 02265  | SAV0182  | 89       |          |          |          |
| ΦNE 12640  | SAV0183  | 67       | 96       |          |          |
| ΦNE 02803  | SAV0184  | 125      |          |          |          |
| ΦNE 05074  | SAV0185  | 70       | 65       | 36       | 97       |
| ΦNE 10656  | SAV0186  | 93       |          |          |          |
| ΦNE 08784  | SAV0187  | 63       | 100      |          |          |
| ΦNE 03140  | SAV0188  | 75       | 70       | 88       | 93       |
| ΦNE 01753  | SAV0189  | 105      |          |          |          |
| ΦNE 04337  | SAV0190  | 47       | 95       |          |          |
| ΦNE 00006  | SAV0192  | 94       |          |          |          |
| ΦNE 02135  | SAV0193  | 105      |          |          |          |
| ΦNE 02429  | SAV0195  | 105      |          |          |          |
| ΦNE 00710  | SAV0195  | 65       |          |          |          |
| ΦNE 05126  | SAV0195  | 100      |          |          |          |
| ΦNE 11739  | SAV0205  | 105      |          |          |          |
| ΦNE 10862  | SAV0206  | 100      |          |          |          |
| ΦNE 04004  | SAV0207  | 85       |          |          |          |
| ΦNE 12525  | SAV0208  | 83       | 104      |          |          |
| ΦNE 03761  | SAV0209  | 76       |          |          |          |
| ΦNE 13516  | SAV0210  | 96       |          |          |          |
| ΦNE 10277  | SAV0211* | 105      |          |          |          |
| ΦNE 04162  | SAV0212  | 63       |          |          |          |
| ΦNE 06383  | SAV0213  | 131      |          |          |          |
| ΦNE 03834  | SAV0214  | 85       |          |          |          |

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 13547         | SAV0215    | 76              | 107             |                 |                 |
| ΦNE 02950         | SAV0216    | 81              | 95              |                 |                 |
| ΦNE 00051         | SAV0216    | 88              |                 |                 |                 |
| ΦNE 12364         | SAV0217    | 63              | 100             |                 |                 |
| ΦNE 04534         | SAV0218    | 118             |                 |                 |                 |
| ΦNE 03836         | SAV0219    | 75              | 95              |                 |                 |
| ΦNE 01499         | SAV0219    | 85              |                 |                 |                 |
| ΦNE 04364         | SAV0220    | 47              | 95              |                 |                 |
| ΦNE 00616         | SAV0222    | 75              |                 |                 |                 |
| ΦNE 00716         | SAV0222    | 85              |                 |                 |                 |
| ΦNE 00452         | SAV0223    | 45              | 100             |                 |                 |
| ΦNE 02933         | SAV0224    | 88              | 90              |                 |                 |
| ΦNE 00232         | SAV0225    | 100             |                 |                 |                 |
| ΦNE 05431         | SAV0226    | 105             |                 |                 |                 |
| ΦNE 04690         | SAV0228    | 100             |                 |                 |                 |
| ΦNE 14033         | SAV0229    | 93              |                 |                 |                 |
| ΦNE 00492         | SAV0230    | 95              |                 |                 |                 |
| ΦNE 04061         | SAV0231    | 112             |                 |                 |                 |
| ΦNE 02733         | SAV0231    | 119             |                 |                 |                 |
| ΦNE 00054         | SAV0232    | 119             |                 |                 |                 |
| ΦNE 03997         | SAV0233    | 100             |                 |                 |                 |
| ΦNE 04666         | SAV0234    | 100             |                 |                 |                 |
| ΦNE 00796         | SAV0235    | 85              |                 |                 |                 |
| ΦNE 03764         | SAV0235    | 94              |                 |                 |                 |
| ΦNE 00015         | SAV0236    | 106             |                 |                 |                 |
| ΦNE 01810         | SAV0237    | 100             |                 |                 |                 |
| ΦNE 11473         | SAV0238    | 46              | 83              |                 |                 |
| ΦNE 04861         | SAV0240    | 100             |                 |                 |                 |
| ΦNE 02831         | SAV0241    | 125             |                 |                 |                 |
| ΦNE 10824         | SAV0242    | 64              | 86              |                 | 100             |
| ΦNE 02365         | SAV0243    | 95              |                 |                 |                 |
| ΦNE 12294         | SAV0244    | 87              |                 |                 |                 |
| ΦNE 03950         | SAV0245    | 90              |                 |                 |                 |
| ΦNE 05635         | SAV0246    | 105             |                 |                 |                 |
| ΦNE 05298         | SAV0248    | 55              | 50              | 25              | 95              |
| ΦNE 05235         | SAV0250    | 95              |                 |                 |                 |
| ΦNE 01934         | SAV0251    | 95              |                 |                 |                 |
| ΦNE 05236         | SAV0252    | 100             |                 |                 |                 |
| ΦNE 03224         | SAV0258    | 63              | 50              | 85              | 85              |
| ΦNE 04126         | SAV0258    | 42              | 60              | 75              | 97              |
| ΦNE 00118         | SAV0259    | 95              |                 |                 |                 |
| ΦNE 02846         | SAV0260    | 113             |                 |                 |                 |
| ΦNE 00645         | SAV0260    | 60              |                 |                 |                 |
| ΦNE 05796         | SAV0261    | 105             |                 |                 |                 |
| ΦNE 00684         | SAV0262    | 75              |                 |                 |                 |

| Mutant no. | ORF     | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|---------|----------|----------|----------|----------|
| ΦNE 05502  | SAV0264 | 105      |          |          |          |
| ΦNE 11126  | SAV0265 | 27       | 83       |          | 98       |
| ΦNE 10852  | SAV0266 | 86       |          |          |          |
| ΦNE 09554  | SAV0267 | 55       | 86       |          | 94       |
| ΦNE 09840  | SAV0268 | 100      | 95       |          |          |
| ΦNE 05444  | SAV0270 | 105      |          |          |          |
| ΦNE 03097  | SAV0271 | 106      |          |          |          |
| ΦNE 07234  | SAV0272 | 97       |          |          |          |
| ΦNE 12766  | SAV0273 | 47       | 86       |          |          |
| ΦNE 00275  | SAV0274 | 100      |          |          |          |
| ΦNE 01870  | SAV0275 | 89       |          |          |          |
| ΦNE 02987  | SAV0276 | 100      |          |          |          |
| ΦNE 04665  | SAV0277 | 118      |          |          |          |
| ΦNE 05550  | SAV0278 | 105      |          |          |          |
| ΦNE 04368  | SAV0279 | 47       | 95       |          |          |
| ΦNE 03794  | SAV0280 | 106      |          |          |          |
| ΦNE 02936  | SAV0281 | 100      |          |          |          |
| ΦNE 09349  | SAV0283 | 123      |          |          |          |
| ΦNE 03742  | SAV0284 | 106      |          |          |          |
| ΦNE 11241  | SAV0285 | 132      |          |          |          |
| ΦNE 02411  | SAV0286 | 100      |          |          |          |
| ΦNE 03683  | SAV0287 | 24       | 85       | 93       |          |
| ΦNE 04464  | SAV0287 | 106      |          |          | 63       |
| ΦNE 02755  | SAV0288 | 125      |          |          |          |
| ΦNE 02832  | SAV0288 | 125      |          |          |          |
| ΦNE 03493  | SAV0293 | 100      |          |          |          |
| ΦNE 10978  | SAV0294 | 114      |          |          |          |
| ΦNE 04048  | SAV0295 | 106      |          |          |          |
| ΦNE 05120  | SAV0296 | 95       |          |          |          |
| ΦNE 04317  | SAV0297 | 105      |          |          |          |
| ΦNE 05433  | SAV0298 | 105      |          |          |          |
| ΦNE 06103  | SAV0299 | 134      |          |          |          |
| ΦNE 11844  | SAV0300 | 46       | 103      |          |          |
| ΦNE 10920  | SAV0302 | 32       | 100      |          |          |
| ΦNE 03864  | SAV0304 | 85       |          |          |          |
| ΦNE 00605  | SAV0305 | 55       | 100      |          |          |
| ΦNE 03413  | SAV0306 | 79       |          |          |          |
| ΦNE 03089  | SAV0307 | 119      |          |          |          |
| ΦNE 00460  | SAV0308 | 70       |          |          |          |
| ΦNE 13888  | SAV0309 | 90       |          |          |          |
| ΦNE 04052  | SAV0310 | 102, 88  |          |          |          |
| ΦNE 04086  | SAV0311 | 76       | 75       | 78       | 98       |
| ΦNE 06575  | SAV0312 | 175      |          |          |          |
| ΦNE 05564  | SAV0313 | 105      |          |          |          |
| ΦNE 03729  | SAV0314 | 71       |          |          |          |

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 09108         | SAV0315    | 72              | 105             |                 |                 |
| ΦNE 02871         | SAV0316    | 125             |                 |                 |                 |
| ΦNE 14683         | SAV0317    | 100             |                 |                 |                 |
| ΦNE 03752         | SAV0318    | 88              |                 |                 |                 |
| ΦNE 06115         | SAV0319    | 172             |                 |                 |                 |
| ΦNE 08795         | SAV0321    | 93              |                 |                 |                 |
| ΦNE 10723         | SAV0323    | 79              |                 |                 |                 |
| ΦNE 11496         | SAV0324    | 29              | 97              |                 |                 |
| ΦNE 05241         | SAV0325    | 100             |                 |                 |                 |
| ΦNE 04742         | SAV0326    | 100             |                 |                 |                 |
| ΦNE 02961         | SAV0327    | 94              |                 |                 |                 |
| ΦNE 04339         | SAV0327    | 37              | 85              | 58              | 100             |
| ΦNE 06073         | SAV0328    | 166             |                 |                 |                 |
| ΦNE 05517         | SAV0329    | 105             |                 |                 |                 |
| ΦNE 02277         | SAV0330    | 95              |                 |                 |                 |
| ΦNE 05320         | SAV0332    | 95              |                 |                 |                 |
| ΦNE 04148         | SAV0334    | 74              |                 |                 |                 |
| ΦNE 03498         | SAV0335    | 105             |                 |                 |                 |
| ΦNE 08713         | SAV0337    | 93              |                 |                 |                 |
| ΦNE 03817         | SAV0337    | 70              |                 |                 |                 |
| ΦNE 00413         | SAV0339    | 75              |                 |                 |                 |
| ΦNE 04056         | SAV0339    | 112             |                 |                 |                 |
| ΦNE 05037         | SAV0340    | 100             |                 |                 |                 |
| ΦNE 00424         | SAV0341    | 70              |                 |                 |                 |
| ΦNE 12477         | SAV0342    | 93              |                 |                 |                 |
| ΦNE 13656         | SAV0343    | 94              |                 |                 |                 |
| ΦNE 05333         | SAV0344    | 90              |                 |                 |                 |
| ΦNE 05694         | SAV0345    | 105             |                 |                 |                 |
| ΦNE 03851         | SAV0346    | 50              | 90              |                 |                 |
| ΦNE 10814         | SAV0348    | 90              |                 |                 |                 |
| ΦNE 11890         | SAV0350    | 50              | 93              |                 |                 |
| ΦNE 04881         | SAV0351    | 100             |                 |                 |                 |
| ΦNE 03635         | SAV0352    | 112             |                 |                 |                 |
| ΦNE 02127         | SAV0353    | 105             |                 |                 |                 |
| ΦNE 03134         | SAV0355    | 113             |                 |                 |                 |
| ΦNE 00735         | SAV0356    | 70              |                 |                 |                 |
| ΦNE 00204         | SAV0357    | 100             |                 |                 |                 |
| ΦNE 02989         | SAV0357    | 75              | 90              |                 |                 |
| ΦNE 08730         | SAV0358    | 100             |                 |                 |                 |
| ΦNE 04976         | SAV0359    | 100             |                 |                 |                 |
| ΦNE 03281         | SAV0360    | 79              |                 |                 |                 |
| ΦNE 11678         | SAV0361    | 92              |                 |                 |                 |
| ΦNE 06441         | SAV0363    | 184             |                 |                 |                 |
| ΦNE 01611         | SAV0368    | 43              | 85              | 98              |                 |
| ΦNE 13296         | SAV0370    | 102             |                 |                 |                 |

| Mutant no. | ORF     | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|---------|----------|----------|----------|----------|
| ΦNE 02822  | SAV0372 | 106      |          |          |          |
| ΦNE 07268  | SAV0375 | 70       | 100      |          |          |
| ΦNE 03854  | SAV0376 | 90       |          |          |          |
| ΦNE 04161  | SAV0377 | 95       |          |          |          |
| ΦNE 01991  | SAV0377 | 74       | 95       |          |          |
| ΦNE 11517  | SAV0378 | 71       | 100      |          |          |
| ΦNE 01746  | SAV0379 | 95       |          |          |          |
| ΦNE 12691  | SAV0381 | 50       | 82       |          | 96       |
| ΦNE 04519  | SAV0382 | 118      |          |          |          |
| ΦNE 05489  | SAV0383 | 105      |          |          |          |
| ΦNE 12236  | SAV0385 | 79       | 93       |          |          |
| ΦNE 09826  | SAV0386 | 105      |          |          |          |
| ΦNE 09238  | SAV0388 | 94       |          |          |          |
| ΦNE 04691  | SAV0389 | 100      |          |          |          |
| ΦNE 02868  | SAV0390 | 125      |          |          |          |
| ΦNE 02197  | SAV0391 | 105      |          |          |          |
| ΦNE 10224  | SAV0416 | 105      |          |          |          |
| ΦNE 11908  | SAV0417 | 100      |          |          |          |
| ΦNE 00572  | SAV0420 | 60       | 100      |          |          |
| ΦNE 06130  | SAV0421 | 109      | 100      |          |          |
| ΦNE 04681  | SAV0424 | 100      |          |          | 102      |
| ΦNE 09645  | SAV0425 | 100      | 100      |          |          |
| ΦNE 03859  | SAV0426 | 75       | 95       |          |          |
| ΦNE 02183  | SAV0427 | 105      |          |          |          |
| ΦNE 01645  | SAV0428 | 95       |          |          |          |
| ΦNE 11723  | SAV0429 | 95       |          |          |          |
| ΦNE 06340  | SAV0430 | 169      |          |          |          |
| ΦNE 00606  | SAV0432 | 70       |          |          |          |
| ΦNE 13910  | SAV0433 | 97       |          |          |          |
| ΦNE 01618  | SAV0434 | 95       |          |          |          |
| ΦNE 01996  | SAV0436 | 105      |          |          |          |
| ΦNE 00586  | SAV0438 | 85       |          |          |          |
| ΦNE 12927  | SAV0441 | 87       |          |          |          |
| ΦNE 12268  | SAV0442 | 63       | 90       |          |          |
| ΦNE 04371  | SAV0444 | 100      |          |          |          |
| ΦNE 00383  | SAV0445 | 100      |          |          |          |
| ΦNE 05045  | SAV0446 | 80       |          |          |          |
| ΦNE 05251  | SAV0449 | 100      |          |          |          |
| ΦNE 04173  | SAV0450 | 47       | 90       |          |          |
| ΦNE 00537  | SAV0455 | 85       |          |          |          |
| ΦNE 03741  | SAV0456 | 106      |          |          |          |
| ΦNE 05316  | SAV0457 | 100      |          |          |          |
| ΦNE 04955  | SAV0459 | 95       |          |          |          |
| ΦNE 03554  | SAV0461 | 100      |          |          |          |
| ΦNE 00099  | SAV0461 | 90       |          |          |          |

| Mutant no. | ORF      | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|----------|----------|----------|----------|----------|
| ΦNE 01861  | SAV0461  | 105      |          |          |          |
| ΦNE 00841  | SAV0462  | 62       |          |          |          |
| ΦNE 02295  | SAV0463  | 105      |          |          |          |
| ΦNE 01857  | SAV0464  | 89       |          |          |          |
| ΦNE 00339  | SAV0464  | 80       |          |          |          |
| ΦNE 04405  | SAV0465  | 112      |          |          |          |
| ΦNE 06582  | SAV0466* | 94       |          |          |          |
| ΦNE 02115  | SAV0467  | 105      |          |          |          |
| ΦNE 00464  | SAV0468  | 50       | 100      |          |          |
| ΦNE 04062  | SAV0469  | 112      |          |          |          |
| ΦNE 03883  | SAV0470  | 80       |          |          |          |
| ΦNE 12685  | SAV0471  | 67       | 96       |          |          |
| ΦNE 04151  | SAV0472  | 105      |          |          |          |
| ΦNE 02133  | SAV0473  | 105      |          |          |          |
| ΦNE 00072  | SAV0474  | 90       |          |          |          |
| ΦNE 03871  | SAV0475  | 10       | 0        |          | 10       |
| ΦNE 03557  | SAV0476  | 95       |          |          |          |
| ΦNE 11167  | SAV0481  | 105      |          |          |          |
| ΦNE 14049  | SAV0485  | 10       | 64       |          | 96       |
| ΦNE 03926  | SAV0487  | 100      |          |          |          |
| ΦNE 01612  | SAV0488  | 73       | 100      |          |          |
| ΦNE 04831  | SAV0489  | 90       |          |          |          |
| ΦNE 13072  | SAV0489* | 102      |          |          |          |
| ΦNE 05397  | SAV0490  | 105      |          |          |          |
| ΦNE 03488  | SAV0492  | 105      |          |          |          |
| ΦNE 05534  | SAV0493  | 105      |          |          |          |
| ΦNE 08899  | SAV0495  | 33       | 107      |          | 98       |
| ΦNE 09720  | SAV0499  | 105      |          |          |          |
| ΦNE 09944  | SAV0501  | 105      |          |          |          |
| ΦNE 02410  | SAV0501  | 105      |          |          |          |
| ΦNE 09430  | SAV0503  | 32       | 71       |          | 98       |
| ΦNE 04818  | SAV0511  | 60       | 65       | 33       | 75       |
| ΦNE 04925  | SAV0512  | 100      |          |          |          |
| ΦNE 09310  | SAV0516  | 88       | 107      |          |          |
| ΦNE 04532  | SAV0518  | 118      |          |          |          |
| ΦNE 03216  | SAV0518  | 89       |          |          |          |
| ΦNE 10259  | SAV0520  | 105      |          |          |          |
| ΦNE 04483  | SAV0521  | 100      |          |          |          |
| ΦNE 00696  | SAV0522  | 60       |          |          |          |
| ΦNE 02037  | SAV0523  | 105      |          |          |          |
| ΦNE 03019  | SAV0525  | 113      |          |          |          |
| ΦNE 00446  | SAV0525  | 60       | 100      |          |          |
| ΦNE 03634  | SAV0526  | 71       |          |          |          |
| ΦNE 05910  | SAV0527  | 105      |          |          |          |
| ΦNE 11689  | SAV0528  | 83       |          |          |          |



| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 02860         | SAV0530    | 31              | 20              |                 | 97              |
| ΦNE 00708         | SAV0531    | 50              | 100             |                 |                 |
| ΦNE 11988         | SAV0532    | 58              | 93              |                 |                 |
| ΦNE 03612         | SAV0541    | 59              | 50              | 86              | 100             |
| ΦNE 03459         | SAV0549    | 105             |                 |                 |                 |
| ΦNE 03858         | SAV0550    | 100             |                 |                 |                 |
| ΦNE 01604         | SAV0551    | 110             |                 |                 |                 |
| ΦNE 04399         | SAV0552    | 71              |                 |                 |                 |
| ΦNE 02892         | SAV0552    | 119             |                 |                 |                 |
| ΦNE 00610         | SAV0553    | 70              |                 |                 |                 |
| ΦNE 08699         | SAV0555    | 90              |                 |                 |                 |
| ΦNE 03850         | SAV0556    | 75              | 100             |                 |                 |
| ΦNE 02743         | SAV0559    | 125             |                 |                 |                 |
| ΦNE 13068         | SAV0560    | 96              |                 |                 |                 |
| ΦNE 03932         | SAV0561    | 90              |                 |                 |                 |
| ΦNE 03506         | SAV0562    | 100             |                 |                 |                 |
| ΦNE 00583         | SAV0563    | 100             |                 |                 | 97              |
| ΦNE 03187         | SAV0564    | 100             |                 |                 |                 |
| ΦNE 09690         | SAV0567    | 105             |                 |                 |                 |
| ΦNE 04823         | SAV0568    | 95              |                 |                 |                 |
| ΦNE 11650         | SAV0569    | 83              |                 |                 |                 |
| ΦNE 12246         | SAV0570    | 88              | 90              |                 |                 |
| ΦNE 03062         | SAV0571    | 44              | 75              | 83              | 98              |
| ΦNE 03520         | SAV0572    | 84              |                 |                 |                 |
| ΦNE 03856         | SAV0573    | 80              |                 |                 |                 |
| ΦNE 04380         | SAV0573    | 65              |                 |                 |                 |
| ΦNE 09443         | SAV0574    | 95              |                 |                 |                 |
| ΦNE 04497         | SAV0575    | 118             |                 |                 |                 |
| ΦNE 05028         | SAV0576    | 95              |                 |                 |                 |
| ΦNE 06188         | SAV0577    | 131             |                 |                 |                 |
| ΦNE 03482         | SAV0580    | 89              |                 |                 |                 |
| ΦNE 10785         | SAV0581    | 86              |                 |                 |                 |
| ΦNE 06170         | SAV0583    | 159             |                 |                 |                 |
| ΦNE 05277         | SAV0584    | 75              | 95              |                 |                 |
| ΦNE 02439         | SAV0586    | 105             |                 |                 |                 |
| ΦNE 01545         | SAV0588    | 30              | 35              |                 | 5               |
| ΦNE 01995         | SAV0594    | 105             |                 |                 |                 |
| ΦNE 10439         | SAV0595    | 93              |                 |                 |                 |
| ΦNE 09988         | SAV0596    | 105             |                 |                 |                 |
| ΦNE 04142         | SAV0596    | 79              |                 |                 |                 |
| ΦNE 05200         | SAV0597    | 75              | 80              | 69              | 93              |
| ΦNE 02981         | SAV0598    | 125             |                 |                 |                 |
| ΦNE 06547         | SAV0598    | 88              | 100             |                 |                 |
| ΦNE 02070         | SAV0600    | 84              |                 |                 |                 |
| ΦNE 05263         | SAV0601    | 100             |                 |                 |                 |

| Mutant no. | ORF      | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|----------|----------|----------|----------|----------|
| ΦNE 12002  | SAV0602  | 121      |          |          |          |
| ΦNE 01599  | SAV0603  | 85       |          |          |          |
| ΦNE 05238  | SAV0604  | 85       |          |          |          |
| ΦNE 04470  | SAV0605  | 53       | 85       | 45       | 97       |
| ΦNE 00139  | SAV0609  | 95       |          |          |          |
| ΦNE 04481  | SAV0610  | 53       | 80       | 51       | 98       |
| ΦNE 01637  | SAV0611  | 95       |          |          |          |
| ΦNE 03143  | SAV0612  | 75       | 60       | 70       | 98       |
| ΦNE 03663  | SAV0615  | 59       | 100      |          |          |
| ΦNE 10017  | SAV0616  | 105      |          |          |          |
| ΦNE 03709  | SAV0617  | 76       |          |          |          |
| ΦNE 04096  | SAV0620  | 82       | 85       | 97       |          |
| ΦNE 04837  | SAV0621  | 100      |          |          |          |
| ΦNE 11326  | SAV0622  | 109      |          |          |          |
| ΦNE 00286  | SAV0625  | 90       |          |          |          |
| ΦNE 14384  | SAV0626  | 90       |          |          |          |
| ΦNE 01786  | SAV0629  | 105      |          |          |          |
| ΦNE 01485  | SAV0631  | 79       |          |          |          |
| ΦNE 02717  | SAV0632  | 125      |          |          |          |
| ΦNE 09193  | SAV0633  | 102      |          |          |          |
| ΦNE 04913  | SAV0635  | 95       |          |          |          |
| ΦNE 05382  | SAV0640  | 105      |          |          |          |
| ΦNE 11552  | SAV0642  | 42       | 28       |          | 100      |
| ΦNE 02038  | SAV0643  | 63       | 60       | 13       | 23       |
| ΦNE 12855  | SAV0644  | 93       |          |          |          |
| ΦNE 03704  | SAV0645  | 59       | 85       | 97       |          |
| ΦNE 03100  | SAV0646* | 69       | 75       | 83       | 98       |
| ΦNE 11205  | SAV0647  | 109      |          |          |          |
| ΦNE 03749  | SAV0648  | 94       |          |          |          |
| ΦNE 02667  | SAV0649  | 100      |          |          |          |
| ΦNE 09237  | SAV0650  | 90       |          |          |          |
| ΦNE 02257  | SAV0652  | 84       |          |          |          |
| ΦNE 02489  | SAV0653  | 53       | 20       | 25       |          |
| ΦNE 02849  | SAV0654  | 75       |          |          |          |
| ΦNE 02091  | SAV0655  | 32       | 65       | 25       |          |
| ΦNE 00623  | SAV0656  | 90       |          |          |          |
| ΦNE 03803  | SAV0657  | 100      |          |          |          |
| ΦNE 03813  | SAV0658  | 50       | 70       | 65       | 97       |
| ΦNE 04324  | SAV0659  | 89       |          |          |          |
| ΦNE 03902  | SAV0660  | 50       | 75       | 63       | 98       |
| ΦNE 00587  | SAV0661  | 70       |          |          |          |
| ΦNE 04764  | SAV0662  | 100      |          |          |          |
| ΦNE 04345  | SAV0662  | 95       |          |          |          |
| ΦNE 05491  | SAV0663  | 105      |          |          |          |
| ΦNE 03029  | SAV0664  | 63       | 90       |          |          |

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 09455         | SAV0665    | 59              | 107             |                 | 100             |
| ΦNE 05202         | SAV0667    | 95              |                 |                 |                 |
| ΦNE 12771         | SAV0668    | 90              |                 |                 |                 |
| ΦNE 04018         | SAV0669    | 80              |                 |                 |                 |
| ΦNE 03602         | SAV0672    | 118             |                 |                 |                 |
| ΦNE 02263         | SAV0672    | 105             |                 |                 |                 |
| ΦNE 01948         | SAV0673    | 89              |                 |                 |                 |
| ΦNE 01974         | SAV0674    | 100             |                 |                 |                 |
| ΦNE 10215         | SAV0675    | 105             |                 |                 |                 |
| ΦNE 05583         | SAV0675    | 95              | 95              |                 |                 |
| ΦNE 00507         | SAV0676    | 80              |                 |                 |                 |
| ΦNE 09638         | SAV0679    | 105             |                 |                 |                 |
| ΦNE 00785         | SAV0679    | 65              |                 |                 |                 |
| ΦNE 05086         | SAV0680    | 100             |                 |                 |                 |
| ΦNE 00836         | SAV0681    | 51              | 95              |                 |                 |
| ΦNE 00316         | SAV0684    | 100             |                 |                 |                 |
| ΦNE 00617         | SAV0685    | 75              |                 |                 |                 |
| ΦNE 03040         | SAV0686    | 88              |                 |                 |                 |
| ΦNE 04065         | SAV0687    | 112             |                 |                 |                 |
| ΦNE 10986         | SAV0690    | 109             |                 |                 |                 |
| ΦNE 12280         | SAV0691    | 58              | 100             |                 |                 |
| ΦNE 11360         | SAV0692    | 109             |                 |                 |                 |
| ΦNE 04797         | SAV0693    | 100             |                 |                 |                 |
| ΦNE 09710         | SAV0694    | 105             |                 |                 |                 |
| ΦNE 05267         | SAV0695    | 100             |                 |                 |                 |
| ΦNE 02147         | SAV0696    | 95              |                 |                 |                 |
| ΦNE 09918         | SAV0698    | 105             |                 |                 |                 |
| ΦNE 09835         | SAV0699    | 105             |                 |                 |                 |
| ΦNE 04930         | SAV0700    | 100             |                 |                 |                 |
| ΦNE 00659         | SAV0701    | 85              |                 |                 |                 |
| ΦNE 05064         | SAV0702    | 100             |                 |                 |                 |
| ΦNE 09837         | SAV0703    | 105             |                 |                 |                 |
| ΦNE 09725         | SAV0705    | 100             | 65              | 36              | 93              |
| ΦNE 01594         | SAV0706    | 98              |                 |                 |                 |
| ΦNE 02705         | SAV0707    | 125             |                 |                 |                 |
| ΦNE 09654         | SAV0708    | 105             |                 |                 |                 |
| ΦNE 01776         | SAV0709    | 16              | 90              | 53              | 78              |
| ΦNE 03711         | SAV0711    | 41              | 85              | 73              | 90              |
| ΦNE 11117         | SAV0713    | 91              |                 |                 |                 |
| ΦNE 02930         | SAV0714    | 119             |                 |                 |                 |
| ΦNE 00549         | SAV0715    | 85              |                 |                 |                 |
| ΦNE 05377         | SAV0717    | 100             |                 |                 |                 |
| ΦNE 04130         | SAV0718    | 95              |                 |                 |                 |
| ΦNE 04908         | SAV0720    | 100             |                 |                 |                 |
| ΦNE 09483         | SAV0721    | 27              | 100             |                 | 68              |

| Mutant no. | ORF     | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|---------|----------|----------|----------|----------|
| ΦNE 09880  | SAV0722 | 105      |          |          |          |
| ΦNE 05542  | SAV0723 | 105      |          |          |          |
| ΦNE 02266  | SAV0724 | 100      |          |          |          |
| ΦNE 05002  | SAV0725 | 90       |          |          |          |
| ΦNE 00328  | SAV0726 | 95       |          |          |          |
| ΦNE 04880  | SAV0727 | 85       | 85       | 71       | 97       |
| ΦNE 10547  | SAV0728 | 73       |          |          |          |
| ΦNE 02913  | SAV0729 | 119      |          |          |          |
| ΦNE 02988  | SAV0733 | 75       | 90       |          |          |
| ΦNE 02275  | SAV0733 | 63       |          |          |          |
| ΦNE 02772  | SAV0734 | 125      |          |          |          |
| ΦNE 08880  | SAV0735 | 92       |          |          |          |
| ΦNE 00012  | SAV0736 | 100      |          |          |          |
| ΦNE 01999  | SAV0737 | 74       | 100      |          |          |
| ΦNE 02004  | SAV0740 | 89       |          |          |          |
| ΦNE 09297  | SAV0742 | 103      |          |          |          |
| ΦNE 05140  | SAV0743 | 100      |          |          |          |
| ΦNE 09363  | SAV0744 | 23       | 89       |          | 100      |
| ΦNE 05370  | SAV0745 | 100      |          |          |          |
| ΦNE 01804  | SAV0746 | 42       | 100      |          |          |
| ΦNE 13309  | SAV0748 | 96       |          |          |          |
| ΦNE 12261  | SAV0749 | 83       | 103      |          |          |
| ΦNE 01492  | SAV0750 | 98       |          |          |          |
| ΦNE 13522  | SAV0751 | 100      |          |          |          |
| ΦNE 03632  | SAV0755 | 29       | 90       |          |          |
| ΦNE 00872  | SAV0755 | 92       |          |          |          |
| ΦNE 11672  | SAV0758 | 54       | 90       |          |          |
| ΦNE 05522  | SAV0759 | 105      |          |          |          |
| ΦNE 04223  | SAV0760 | 105      |          |          |          |
| ΦNE 03114  | SAV0761 | 125      |          |          |          |
| ΦNE 00106  | SAV0761 | 90       |          |          |          |
| ΦNE 02399  | SAV0762 | 105      |          |          |          |
| ΦNE 05151  | SAV0763 | 100      |          |          |          |
| ΦNE 13116  | SAV0768 | 22       |          |          |          |
| ΦNE 00102  | SAV0769 | 95       |          |          |          |
| ΦNE 03043  | SAV0769 | 88       |          |          |          |
| ΦNE 15277  | SAV0770 | 57       | 93       |          |          |
| ΦNE 03118  | SAV0775 | 125      |          |          |          |
| ΦNE 14436  | SAV0779 | 97       |          |          |          |
| ΦNE 04111  | SAV0800 | 79       |          |          |          |
| ΦNE 03793  | SAV0803 | 112      |          |          |          |
| ΦNE 02513  | SAV0804 | 100      |          |          |          |
| ΦNE 02360  | SAV0805 | 100      |          |          |          |
| ΦNE 12858  | SAV0808 | 43       | 82       |          | 98       |
| ΦNE 09646  | SAV0809 | 105      |          |          |          |

| Mutant no. | ORF      | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|----------|----------|----------|----------|----------|
| ΦNE 06882  | SAV0810  | 100      |          |          |          |
| ΦNE 05280  | SAV0811  | 100      |          |          |          |
| ΦNE 06933  | SAV0812  | 87       |          |          |          |
| ΦNE 09823  | SAV0815  | 95       | 65       | 56       | 93       |
| ΦNE 03877  | SAV0815  | 97       |          |          |          |
| ΦNE 15315  | SAV0819  | 73       | 104      |          |          |
| ΦNE 07534  | SAV0822  | 63       | 82       |          | 98       |
| ΦNE 11279  | SAV0825  | 95       |          |          |          |
| ΦNE 06610  | SAV0826  | 73       | 107      |          |          |
| ΦNE 12871  | SAV0830  | 57       | 100      |          |          |
| ΦNE 06050  | SAV0830  | 138      |          |          |          |
| ΦNE 02894  | SAV0835  | 100      | 80       | 85       | 98       |
| ΦNE 05142  | SAV0837  | 95       |          |          |          |
| ΦNE 02404  | SAV0838  | 105      |          |          |          |
| ΦNE 00555  | SAV0838  | 80       |          |          |          |
| ΦNE 12909  | SAV0839  | 90       |          |          |          |
| ΦNE 04279  | SAV0841  | 21       | 30       | 13       | 10       |
| ΦNE 03788  | SAV0845  | 118      |          |          |          |
| ΦNE 09814  | SAV0848  | 105      |          |          |          |
| ΦNE 00225  | SAV0849  | 100      |          |          |          |
| ΦNE 07262  | SAV0855  | 27       | 36       |          | 70       |
| ΦNE 03416  | SAV0855  | 84       |          |          |          |
| ΦNE 12671  | SAV0858  | 57       | 29       |          |          |
| ΦNE 04000  | SAV0861* | 95       |          |          |          |
| ΦNE 12478  | SAV0862  | 7        | 21       |          | 96       |
| ΦNE 06544  | SAV0863  | 82       | 104      |          |          |
| ΦNE 08772  | SAV0866  | 28       | 22.7     |          |          |
| ΦNE 12985  | SAV0868* | 98       |          |          |          |
| ΦNE 04743  | SAV0875  | 100      |          |          |          |
| ΦNE 03004  | SAV0876  | 38       | 15       | 27       | 17       |
| ΦNE 01478  | SAV0877  | 85       |          |          |          |
| ΦNE 04372  | SAV0881  | 118      |          |          |          |
| ΦNE 03060  | SAV0882  | 75       | 60       | 65       | 100      |
| ΦNE 00024  | SAV0883  | 50       | 100      |          |          |
| ΦNE 05312  | SAV0885  | 95       |          |          |          |
| ΦNE 00046  | SAV0886  | 81       |          |          |          |
| ΦNE 08764  | SAV0886  | 79       |          |          |          |
| ΦNE 10805  | SAV0887  | 90       |          |          |          |
| ΦNE 03820  | SAV0887  | 90       |          |          |          |
| ΦNE 00084  | SAV0888  | 85       |          |          |          |
| ΦNE 03685  | SAV0889  | 76       |          |          |          |
| ΦNE 00294  | SAV0890  | 95       |          |          |          |
| ΦNE 09919  | SAV0891  | 105      |          |          |          |
| ΦNE 00667  | SAV0892  | 80       |          |          |          |
| ΦNE 11287  | SAV0893  | 55       | 35.1     |          |          |

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 02185         | SAV0894    | 100             |                 |                 |                 |
| ΦNE 03655         | SAV0895    | 100             |                 |                 |                 |
| ΦNE 02232         | SAV0896    | 89              |                 |                 |                 |
| ΦNE 03687         | SAV0897    | 47              | 100             |                 |                 |
| ΦNE 10971         | SAV0898    | 82              |                 |                 |                 |
| ΦNE 04734         | SAV0898    | 100             |                 |                 |                 |
| ΦNE 06680         | SAV0898    | 163             |                 |                 |                 |
| ΦNE 09552         | SAV0900    | 55              | 100             |                 |                 |
| ΦNE 03708         | SAV0901    | 82              |                 |                 |                 |
| ΦNE 00064         | SAV0901    | 81              |                 |                 |                 |
| ΦNE 00226         | SAV0902    | 100             |                 |                 |                 |
| ΦNE 02017         | SAV0903    | 53              | 95              |                 |                 |
| ΦNE 01552         | SAV0904    | 104             |                 |                 |                 |
| ΦNE 03093         | SAV0904    | 94              |                 |                 |                 |
| ΦNE 00637         | SAV0905    | 90              |                 |                 |                 |
| ΦNE 07080         | SAV0906    | 67              | 89              |                 |                 |
| ΦNE 06695         | SAV0908    | 96              |                 |                 |                 |
| ΦNE 03088         | SAV0909    | 113             |                 |                 |                 |
| ΦNE 01519         | SAV0909    | 104             |                 |                 |                 |
| ΦNE 03217         | SAV0910    | 100             |                 |                 |                 |
| ΦNE 00672         | SAV0910    | 70              |                 |                 |                 |
| ΦNE 01580         | SAV0911    | 85              |                 |                 |                 |
| ΦNE 06605         | SAV0912    | 166             |                 |                 |                 |
| ΦNE 00479         | SAV0913    | 75              |                 |                 |                 |
| ΦNE 12527         | SAV0920    | 47              | 93              |                 |                 |
| ΦNE 04333         | SAV0921    | 100             |                 |                 |                 |
| ΦNE 06690         | SAV0922    | 175             |                 |                 |                 |
| ΦNE 03068         | SAV0922    | 106             |                 |                 |                 |
| ΦNE 01629         | SAV0922    | 105             |                 |                 |                 |
| ΦNE 01811         | SAV0923    | 89              |                 |                 |                 |
| ΦNE 00703         | SAV0924    | 15              | 100             |                 |                 |
| ΦNE 00769         | SAV0927    | 35              | 100             |                 |                 |
| ΦNE 05344         | SAV0928    | 100             |                 |                 |                 |
| ΦNE 01968         | SAV0929    | 95              |                 |                 |                 |
| ΦNE 00653         | SAV0930    | 85              |                 |                 |                 |
| ΦNE 12076         | SAV0933    | 54              | 100             |                 |                 |
| ΦNE 09346         | SAV0935    | 100             |                 |                 |                 |
| ΦNE 04728         | SAV0937    | 100             |                 |                 |                 |
| ΦNE 00231         | SAV0938    | 100             |                 |                 |                 |
| ΦNE 13891         | SAV0939    | 100             |                 |                 |                 |
| ΦNE 10876         | SAV0940    | 72              | 45.5            | 29.8            |                 |
| ΦNE 01739         | SAV0941    | 105             |                 |                 |                 |
| ΦNE 05012         | SAV0942    | 85              |                 |                 |                 |
| ΦNE 11584         | SAV0943    | 63              | 93              |                 |                 |
| ΦNE 05437         | SAV0944    | 95              | 65              | 47              | 25              |

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 04008         | SAV0945    | 75              |                 |                 |                 |
| ΦNE 09242         | SAV0956    | 93              |                 |                 |                 |
| ΦNE 03954         | SAV0957    | 100             |                 |                 |                 |
| ΦNE 02830         | SAV0958    | 106             |                 |                 |                 |
| ΦNE 00806         | SAV0959    | 31              | 100             |                 |                 |
| ΦNE 04599         | SAV0960    | 76              |                 |                 |                 |
| ΦNE 08885         | SAV0962    | 98              |                 |                 |                 |
| ΦNE 00327         | SAV0963    | 80              |                 |                 |                 |
| ΦNE 02078         | SAV0968    | 63              | 100             |                 |                 |
| ΦNE 02923         | SAV0969    | 94              |                 |                 |                 |
| ΦNE 11697         | SAV0970    | 33              | 103             |                 |                 |
| ΦNE 05620         | SAV0974    | 105             |                 |                 |                 |
| ΦNE 03545         | SAV0976    | 100             |                 |                 |                 |
| ΦNE 00694         | SAV0977    | 35              | 100             |                 |                 |
| ΦNE 05299         | SAV0978    | 100             |                 |                 |                 |
| ΦNE 05409         | SAV0979    | 100             |                 |                 |                 |
| ΦNE 01532         | SAV0981    | 110             |                 |                 |                 |
| ΦNE 04047         | SAV0985    | 100             |                 |                 |                 |
| ΦNE 02880         | SAV0986    | 113             |                 |                 |                 |
| ΦNE 02280         | SAV0987    | 100             |                 |                 |                 |
| ΦNE 14304         | SAV0988    | 100             |                 |                 |                 |
| ΦNE 04084         | SAV0989    | 94              |                 |                 |                 |
| ΦNE 02040         | SAV0990    | 105             |                 |                 |                 |
| ΦNE 00303         | SAV0991    | 90              |                 |                 |                 |
| ΦNE 01951         | SAV0992    | 100             |                 |                 |                 |
| ΦNE 05621         | SAV0993    | 105             |                 |                 |                 |
| ΦNE 03876         | SAV0994    | 100             |                 |                 |                 |
| ΦNE 10629         | SAV0995    | 90              |                 |                 |                 |
| ΦNE 05436         | SAV0998    | 105             |                 |                 |                 |
| ΦNE 04804         | SAV1000    | 100             |                 |                 |                 |
| ΦNE 00315         | SAV1000    | 100             |                 |                 |                 |
| ΦNE 05368         | SAV1001    | 100             |                 |                 |                 |
| ΦNE 06682         | SAV1002    | 188             |                 |                 |                 |
| ΦNE 02696         | SAV1004    | 125             |                 |                 |                 |
| ΦNE 04841         | SAV1008    | 100             |                 |                 |                 |
| ΦNE 04961         | SAV1009    | 100             |                 |                 |                 |
| ΦNE 00142         | SAV1010    | 70              | 95              |                 |                 |
| ΦNE 00126         | SAV1012    | 65              | 90              | 37              | 25              |
| ΦNE 10663         | SAV1013    | 97              |                 |                 |                 |
| ΦNE 08774         | SAV1014    | 94              |                 |                 |                 |
| ΦNE 06998         | SAV1019    | 70              | 96              |                 |                 |
| ΦNE 04400         | SAV1023    | 71              |                 |                 | 93              |
| ΦNE 02935         | SAV1024    | 125             |                 |                 |                 |
| ΦNE 05509         | SAV1025    | 105             |                 |                 |                 |
| ΦNE 03801         | SAV1028    | 100             |                 |                 |                 |

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 00658         | SAV1028*   | 90              |                 |                 |                 |
| ΦNE 04348         | SAV1030    | 112             |                 |                 |                 |
| ΦNE 05080         | SAV1031    | 95              |                 |                 |                 |
| ΦNE 02673         | SAV1032    | 95              |                 |                 |                 |
| ΦNE 02898         | SAV1033    | 119             |                 |                 |                 |
| ΦNE 03633         | SAV1035    | 88              |                 |                 |                 |
| ΦNE 13696         | SAV1037    | 57              | 100             |                 |                 |
| ΦNE 00261         | SAV1039    | 60              |                 |                 |                 |
| ΦNE 03175         | SAV1039    | 106             |                 |                 |                 |
| ΦNE 05328         | SAV1040    | 100             |                 |                 |                 |
| ΦNE 09687         | SAV1044    | 105             |                 |                 |                 |
| ΦNE 04732         | SAV1046    | 100             |                 |                 |                 |
| ΦNE 01572         | SAV1047    | 91              |                 |                 |                 |
| ΦNE 13070         | SAV1048    | 98              |                 |                 |                 |
| ΦNE 09873         | SAV1049    | 105             |                 |                 |                 |
| ΦNE 02744         | SAV1050    | 125             |                 |                 |                 |
| ΦNE 06238         | SAV1052    | 22              | 89.7            |                 |                 |
| ΦNE 04970         | SAV1053    | 100             |                 |                 |                 |
| ΦNE 06233         | SAV1054    | 144             |                 |                 |                 |
| ΦNE 10201         | SAV1054    | 105             | 59              | 75              | 100             |
| ΦNE 05261         | SAV1057    | 90              |                 |                 |                 |
| ΦNE 02302         | SAV1060    | 105             |                 |                 |                 |
| ΦNE 05543         | SAV1062    | 105             |                 |                 |                 |
| ΦNE 02380         | SAV1064    | 100             |                 |                 |                 |
| ΦNE 05091         | SAV1065    | 100             |                 |                 |                 |
| ΦNE 04806         | SAV1065    | 100             |                 |                 |                 |
| ΦNE 02924         | SAV1066    | 125             |                 |                 |                 |
| ΦNE 01626         | SAV1066    | 105             |                 |                 |                 |
| ΦNE 12894         | SAV1067    | 100             |                 |                 |                 |
| ΦNE 05399         | SAV1068    | 105             |                 |                 |                 |
| ΦNE 03038         | SAV1070    | 125             |                 |                 |                 |
| ΦNE 03863         | SAV1071    | 100             |                 |                 |                 |
| ΦNE 04103         | SAV1073    | 118             |                 |                 |                 |
| ΦNE 03896         | SAV1074    | 100             |                 |                 |                 |
| ΦNE 03789         | SAV1075    | 118             |                 |                 |                 |
| ΦNE 05649         | SAV1076    | 105             |                 |                 |                 |
| ΦNE 13746         | SAV1077    | 102             |                 |                 |                 |
| ΦNE 00570         | SAV1081    | 85              |                 |                 |                 |
| ΦNE 00870         | SAV1084    | 56              | 100             |                 |                 |
| ΦNE 06439         | SAV1086    | 153             |                 |                 |                 |
| ΦNE 09917         | SAV1088    | 105             |                 |                 |                 |
| ΦNE 01837         | SAV1089    | 89              |                 |                 |                 |
| ΦNE 04761         | SAV1092    | 95              |                 |                 |                 |
| ΦNE 10868         | SAV1094    | 0               | 26              |                 | 22              |
| ΦNE 04312         | SAV1098    | 68              |                 |                 |                 |



| Mutant no. | ORF     | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|---------|----------|----------|----------|----------|
| ΦNE 11872  | SAV1100 | 75       | 97       |          |          |
| ΦNE 12133  | SAV1101 | 46       | 100      |          |          |
| ΦNE 02669  | SAV1102 | 100      |          |          |          |
| ΦNE 06164  | SAV1104 | 134      |          |          |          |
| ΦNE 03662  | SAV1105 | 76       |          |          |          |
| ΦNE 12645  | SAV1108 | 100      |          |          |          |
| ΦNE 02729  | SAV1109 | 125      |          |          |          |
| ΦNE 04029  | SAV1109 | 95       |          |          |          |
| ΦNE 06499  | SAV1110 | 141      |          |          |          |
| ΦNE 04166  | SAV1111 | 105      |          |          |          |
| ΦNE 01941  | SAV1111 | 105      |          |          |          |
| ΦNE 09768  | SAV1112 | 100      | 100      |          |          |
| ΦNE 04475  | SAV1114 | 47       | 95       |          |          |
| ΦNE 03778  | SAV1114 | 59       | 100      |          |          |
| ΦNE 14423  | SAV1115 | 100      |          |          |          |
| ΦNE 02477  | SAV1117 | 79       | 100      |          |          |
| ΦNE 00441  | SAV1118 | 25       | 95       |          |          |
| ΦNE 04298  | SAV1121 | 105      |          |          |          |
| ΦNE 03807  | SAV1121 | 90       |          |          |          |
| ΦNE 04820  | SAV1122 | 75       | 90       |          |          |
| ΦNE 12232  | SAV1123 | 96       |          |          |          |
| ΦNE 11795  | SAV1126 | 118      |          |          |          |
| ΦNE 06230  | SAV1127 | 166      |          |          |          |
| ΦNE 04990  | SAV1129 | 95       |          |          |          |
| ΦNE 01954  | SAV1130 | 105      |          |          |          |
| ΦNE 09284  | SAV1131 | 103      |          |          |          |
| ΦNE 03054  | SAV1132 | 69       |          |          |          |
| ΦNE 04382  | SAV1132 | 112      |          |          |          |
| ΦNE 13865  | SAV1133 | 100      |          |          |          |
| ΦNE 12849  | SAV1134 | 93       |          |          |          |
| ΦNE 03811  | SAV1135 | 75       |          |          |          |
| ΦNE 01454  | SAV1135 | 104      |          |          |          |
| ΦNE 06585  | SAV1136 | 90       | 100      |          |          |
| ΦNE 05067  | SAV1136 | 85       |          |          |          |
| ΦNE 04124  | SAV1137 | 100      |          |          |          |
| ΦNE 04007  | SAV1142 | 70       |          |          |          |
| ΦNE 00668  | SAV1143 | 75       |          |          |          |
| ΦNE 05614  | SAV1144 | 105      |          |          |          |
| ΦNE 05356  | SAV1146 | 100      |          |          |          |
| ΦNE 04650  | SAV1146 | 112      |          |          |          |
| ΦNE 01442  | SAV1148 | 104      |          |          |          |
| ΦNE 04085  | SAV1150 | 118      |          |          |          |
| ΦNE 02844  | SAV1152 | 100      |          |          |          |
| ΦNE 11877  | SAV1153 | 13       | 97       |          |          |
| ΦNE 13803  | SAV1157 | 100      |          |          |          |

| Mutant no. | ORF      | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|----------|----------|----------|----------|----------|
| ΦNE 03597  | SAV1158  | 100      |          |          |          |
| ΦNE 11961  | SAV1159  | 92       |          |          |          |
| ΦNE 02140  | SAV1163  | 89       |          |          |          |
| ΦNE 01440  | SAV1166  | 122      |          |          | 101      |
| ΦNE 10229  | SAV1168  | 105      |          |          |          |
| ΦNE 05014  | SAV1169  | 100      |          |          |          |
| ΦNE 12598  | SAV1170  | 97       |          |          |          |
| ΦNE 04829  | SAV1171  | 95       |          |          |          |
| ΦNE 04507  | SAV1172  | 118      |          |          |          |
| ΦNE 00372  | SAV1173  | 75       |          |          |          |
| ΦNE 11641  | SAV1174  | 121      |          |          |          |
| ΦNE 09093  | SAV1175  | 97       |          |          |          |
| ΦNE 04044  | SAV1177  | 76       | 30       | 50       | 100      |
| ΦNE 10949  | SAV1190  | 86       | 64.9     |          |          |
| ΦNE 12315  | SAV1191  | 97       |          |          |          |
| ΦNE 00715  | SAV1194  | 65       |          |          |          |
| ΦNE 00656  | SAV1201  | 30       | 5        |          |          |
| ΦNE 00678  | SAV1202  | 35       | 20       |          |          |
| ΦNE 02887  | SAV1203  | 88       | 5        |          | 88       |
| ΦNE 04659  | SAV1203  | 12       | 80       |          |          |
| ΦNE 12249  | SAV1204* | 42       | 103      |          |          |
| ΦNE 02904  | SAV1205  | 56       | 5        |          | 94       |
| ΦNE 03984  | SAV1206  | 90       |          |          |          |
| ΦNE 04888  | SAV1207  | 100      |          |          |          |
| ΦNE 09798  | SAV1208  | 105      |          |          |          |
| ΦNE 09735  | SAV1213  | 105      |          |          |          |
| ΦNE 00197  | SAV1217  | 100      |          |          |          |
| ΦNE 00032  | SAV1218  | 81       |          |          |          |
| ΦNE 14673  | SAV1219  | 43       | 100      |          |          |
| ΦNE 03940  | SAV1220  | 95       |          |          |          |
| ΦNE 12600  | SAV1221  | 30       | 14       |          |          |
| ΦNE 11428  | SAV1224  | 117      |          |          |          |
| ΦNE 00020  | SAV1226  | 25       | 100      |          |          |
| ΦNE 11173  | SAV1227  | 27       | 24       |          | 84       |
| ΦNE 10529  | SAV1234  | 64       | 79       |          | 96       |
| ΦNE 11999  | SAV1240  | 104      |          |          |          |
| ΦNE 09294  | SAV1241  | 103      |          |          |          |
| ΦNE 05179  | SAV1242  | 90       |          |          |          |
| ΦNE 01541  | SAV1244  | 91       |          |          |          |
| ΦNE 00594  | SAV1247  | 60       | 100      |          |          |
| ΦNE 02920  | SAV1248  | 88       | 80       | 78       | 98       |
| ΦNE 06190  | SAV1249  | 159      |          |          |          |
| ΦNE 03407  | SAV1251  | 89       |          |          |          |
| ΦNE 09425  | SAV1270  | 132      |          |          |          |
| ΦNE 02315  | SAV1271  | 100      |          |          |          |

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 05451         | SAV1274    | 105             |                 |                 |                 |
| ΦNE 10926         | SAV1278    | 27              | 97              |                 |                 |
| ΦNE 14030         | SAV1279    | 100             |                 |                 |                 |
| ΦNE 04737         | SAV1280    | 100             |                 |                 |                 |
| ΦNE 01812         | SAV1281    | 100             |                 |                 |                 |
| ΦNE 09773         | SAV1284    | 100             | 100             |                 |                 |
| ΦNE 00206         | SAV1292    | 20              | 100             |                 |                 |
| ΦNE 09545         | SAV1294    | 32              | 107             |                 |                 |
| ΦNE 04775         | SAV1296    | 100             |                 |                 |                 |
| ΦNE 00866         | SAV1296    | 72              |                 |                 |                 |
| ΦNE 01512         | SAV1297    | 79              |                 |                 |                 |
| ΦNE 00722         | SAV1298    | 70              |                 |                 |                 |
| ΦNE 11481         | SAV1300    | 42              | 48              |                 | 98              |
| ΦNE 05496         | SAV1301    | 105             |                 |                 |                 |
| ΦNE 02025         | SAV1302    | 100             |                 |                 |                 |
| ΦNE 09695         | SAV1303    | 105             |                 |                 |                 |
| ΦNE 06616         | SAV1305    | 178             |                 |                 |                 |
| ΦNE 04164         | SAV1306    | 100             |                 |                 |                 |
| ΦNE 00270         | SAV1307    | 90              |                 |                 |                 |
| ΦNE 02357         | SAV1308    | 105             |                 |                 |                 |
| ΦNE 01862         | SAV1314    | 100             |                 |                 |                 |
| ΦNE 03808         | SAV1315    | 85              |                 |                 |                 |
| ΦNE 00201         | SAV1317    | 95              |                 |                 |                 |
| ΦNE 04854         | SAV1318    | 100             |                 |                 |                 |
| ΦNE 09053         | SAV1319    | 90              | 100             |                 |                 |
| ΦNE 12683         | SAV1320    | 63              | 104             |                 |                 |
| ΦNE 01824         | SAV1321    | 105             |                 |                 |                 |
| ΦNE 11466         | SAV1322    | 46              | 103             |                 |                 |
| ΦNE 00021         | SAV1323    | 94              |                 |                 |                 |
| ΦNE 03258         | SAV1324    | 95              |                 |                 |                 |
| ΦNE 04891         | SAV1326    | 100             |                 |                 |                 |
| ΦNE 03196         | SAV1327    | 106             |                 |                 |                 |
| ΦNE 11942         | SAV1328    | 104             |                 |                 |                 |
| ΦNE 12625         | SAV1329    | 53              | 71              |                 | 100             |
| ΦNE 09336         | SAV1330    | 82              |                 |                 |                 |
| ΦNE 10079         | SAV1331    | 105             |                 |                 |                 |
| ΦNE 00210         | SAV1332    | 45              | 100             |                 |                 |
| ΦNE 03920         | SAV1333    | 100             |                 |                 |                 |
| ΦNE 12739         | SAV1335    | 80              | 75              |                 | 100             |
| ΦNE 06121         | SAV1336    | 169             |                 |                 |                 |
| ΦNE 03569         | SAV1337    | 89              |                 |                 |                 |
| ΦNE 05032         | SAV1338    | 100             |                 |                 |                 |
| ΦNE 04545         | SAV1340    | 106             |                 |                 |                 |
| ΦNE 10517         | SAV1341    | 50              | 86              |                 | 100             |
| ΦNE 09392         | SAV1344    | 105             |                 |                 |                 |

| Mutant no. | ORF      | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|----------|----------|----------|----------|----------|
| ΦNE 05227  | SAV1345  | 100      |          |          |          |
| ΦNE 00220  | SAV1346  | 30       | 85       | 98       |          |
| ΦNE 06464  | SAV1349  | 90       | 104      |          |          |
| ΦNE 00263  | SAV1350  | 25       | 50       |          | 58       |
| ΦNE 06317  | SAV1351  | 147      |          |          |          |
| ΦNE 11868  | SAV1355  | 21       | 34       |          | 100      |
| ΦNE 09110  | SAV1356  | 72       | 86.4     | 63.2     |          |
| ΦNE 11405  | SAV1357  | 132      |          |          |          |
| ΦNE 08767  | SAV1361  | 103      |          |          |          |
| ΦNE 11797  | SAV1362* | 50       | 21.1     |          |          |
| ΦNE 04469  | SAV1364  | 53       | 95       |          |          |
| ΦNE 09750  | SAV1365  | 100      | 100      |          |          |
| ΦNE 03998  | SAV1366  | 90       |          |          |          |
| ΦNE 00553  | SAV1367  | 100      |          |          |          |
| ΦNE 06482  | SAV1368  | 134      |          |          |          |
| ΦNE 03894  | SAV1369  | 100      |          |          |          |
| ΦNE 10240  | SAV1370  | 84       | 65       |          | 72       |
| ΦNE 01453  | SAV1371  | 104      |          |          |          |
| ΦNE 11372  | SAV1372  | 82       | 71.9     |          |          |
| ΦNE 03755  | SAV1373  | 118      |          |          |          |
| ΦNE 00727  | SAV1373  | 85       |          |          |          |
| ΦNE 09532  | SAV1377  | 27       | 100      |          |          |
| ΦNE 00134  | SAV1379  | 85       |          |          |          |
| ΦNE 04936  | SAV1379  | 95       |          |          |          |
| ΦNE 12518  | SAV1380  | 90       |          |          |          |
| ΦNE 05051  | SAV1381  | 100      |          |          |          |
| ΦNE 04189  | SAV1382  | 58       | 45       | 75       | 100      |
| ΦNE 00562  | SAV1383  | 80       |          |          |          |
| ΦNE 03893  | SAV1384  | 85       |          |          |          |
| ΦNE 00589  | SAV1385  | 80       |          |          |          |
| ΦNE 05321  | SAV1386  | 100      |          |          |          |
| ΦNE 05589  | SAV1387  | 105      |          |          |          |
| ΦNE 06387  | SAV1388  | 153      |          |          |          |
| ΦNE 01667  | SAV1389  | 84       |          |          |          |
| ΦNE 02833  | SAV1389  | 125      |          |          |          |
| ΦNE 04987  | SAV1391  | 100      |          |          |          |
| ΦNE 04444  | SAV1392  | 100      |          |          |          |
| ΦNE 09077  | SAV1393  | 90       |          |          |          |
| ΦNE 04943  | SAV1394  | 95       |          |          |          |
| ΦNE 02057  | SAV1395  | 100      |          |          |          |
| ΦNE 00844  | SAV1396  | 41       | 90       | 97       |          |
| ΦNE 12571  | SAV1397  | 97       |          |          |          |
| ΦNE 11121  | SAV1399  | 132      |          |          |          |
| ΦNE 10233  | SAV1400  | 105      |          |          |          |
| ΦNE 05537  | SAV1401  | 105      |          |          |          |

| Mutant no. | ORF     | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|---------|----------|----------|----------|----------|
| ΦNE 08971  | SAV1404 | 80       | 100      |          |          |
| ΦNE 09592  | SAV1405 | 86       |          |          |          |
| ΦNE 00420  | SAV1407 | 80       |          |          |          |
| ΦNE 03005  | SAV1408 | 100      |          |          |          |
| ΦNE 03580  | SAV1408 | 32       | 15       | 27       | 98       |
| ΦNE 03792  | SAV1411 | 112      |          |          |          |
| ΦNE 04792  | SAV1412 | 90       | 100      |          |          |
| ΦNE 04120  | SAV1416 | 53       | 95       |          |          |
| ΦNE 09941  | SAV1420 | 105      |          |          |          |
| ΦNE 02406  | SAV1423 | 105      |          |          |          |
| ΦNE 05309  | SAV1425 | 95       |          |          |          |
| ΦNE 05515  | SAV1429 | 95       | 100      |          |          |
| ΦNE 02155  | SAV1432 | 68       | 100      |          |          |
| ΦNE 11448  | SAV1433 | 58       | 66       |          | 100      |
| ΦNE 04384  | SAV1434 | 118      |          |          |          |
| ΦNE 00288  | SAV1435 | 85       |          |          |          |
| ΦNE 02417  | SAV1435 | 105      |          |          |          |
| ΦNE 03648  | SAV1435 | 94       |          |          |          |
| ΦNE 13073  | SAV1436 | 92       |          |          |          |
| ΦNE 03505  | SAV1436 | 89       |          |          |          |
| ΦNE 02311  | SAV1437 | 105      |          |          |          |
| ΦNE 09822  | SAV1437 | 100      | 95       |          |          |
| ΦNE 03573  | SAV1438 | 74       |          |          |          |
| ΦNE 01628  | SAV1439 | 105      |          |          |          |
| ΦNE 10883  | SAV1440 | 97       |          |          |          |
| ΦNE 04669  | SAV1441 | 100      |          |          |          |
| ΦNE 10919  | SAV1442 | 62       | 50       | 49.1     |          |
| ΦNE 05628  | SAV1443 | 105      |          |          |          |
| ΦNE 10463  | SAV1444 | 100      |          |          |          |
| ΦNE 02660  | SAV1448 | 100      |          |          |          |
| ΦNE 00061  | SAV1451 | 63       | 100      |          |          |
| ΦNE 11116  | SAV1454 | 123      |          |          |          |
| ΦNE 01561  | SAV1455 | 67       | 100      | 97       |          |
| ΦNE 09834  | SAV1455 | 100      | 85       |          | 97       |
| ΦNE 10521  | SAV1458 | 41       | 93       |          |          |
| ΦNE 14032  | SAV1459 | 100      |          |          |          |
| ΦNE 04132  | SAV1461 | 105      |          |          |          |
| ΦNE 01471  | SAV1463 | 98       |          |          |          |
| ΦNE 00200  | SAV1469 | 60       | 95       |          |          |
| ΦNE 09236  | SAV1476 | 96       |          |          |          |
| ΦNE 00664  | SAV1480 | 75       |          |          |          |
| ΦNE 02088  | SAV1480 | 105      |          |          |          |
| ΦNE 01733  | SAV1482 | 95       |          |          |          |
| ΦNE 04755  | SAV1483 | 100      |          |          |          |
| ΦNE 09828  | SAV1484 | 105      |          |          |          |

| Mutant no. | ORF      | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|----------|----------|----------|----------|----------|
| ΦNE 00334  | SAV1485  | 100      |          |          |          |
| ΦNE 09669  | SAV1488  | 105      |          |          |          |
| ΦNE 06275  | SAV1489  | 134      | 100      |          |          |
| ΦNE 08794  | SAV1489* | 86       |          |          |          |
| ΦNE 12844  | SAV1491  | 97       |          |          |          |
| ΦNE 00634  | SAV1493  | 85       |          |          |          |
| ΦNE 08902  | SAV1494  | 92       |          |          |          |
| ΦNE 02742  | SAV1495  | 119      |          |          |          |
| ΦNE 10457  | SAV1496  | 93       |          |          |          |
| ΦNE 03765  | SAV1499  | 71       |          |          |          |
| ΦNE 08669  | SAV1500  | 86       |          |          |          |
| ΦNE 04692  | SAV1501  | 100      |          |          |          |
| ΦNE 03207  | SAV1502  | 105      |          |          |          |
| ΦNE 09842  | SAV1503  | 105      |          |          |          |
| ΦNE 03915  | SAV1506  | 95       |          |          |          |
| ΦNE 10195  | SAV1507  | 105      |          |          |          |
| ΦNE 04920  | SAV1508  | 100      |          |          |          |
| ΦNE 01616  | SAV1509  | 53       | 100      |          |          |
| ΦNE 00153  | SAV1512  | 90       |          |          |          |
| ΦNE 05030  | SAV1513  | 95       |          |          |          |
| ΦNE 09950  | SAV1514  | 105      |          |          |          |
| ΦNE 10858  | SAV1515  | 64       | 10       |          |          |
| ΦNE 13468  | SAV1517  | 100      |          |          |          |
| ΦNE 10390  | SAV1518  | 9        |          |          |          |
| ΦNE 09439  | SAV1519  | 45       | 64       |          |          |
| ΦNE 00598  | SAV1520  | 50       | 95       |          |          |
| ΦNE 00218  | SAV1521  | 65       | 95       |          |          |
| ΦNE 01978  | SAV1523  | 26       | 95       |          |          |
| ΦNE 13764  | SAV1524  | 98       |          |          |          |
| ΦNE 09368  | SAV1529  | 105      |          |          |          |
| ΦNE 02082  | SAV1535  | 95       |          |          |          |
| ΦNE 01569  | SAV1536  | 104      |          |          |          |
| ΦNE 04366  | SAV1539  | 112      |          |          |          |
| ΦNE 09937  | SAV1540  | 105      |          |          |          |
| ΦNE 09268  | SAV1541  | 100      |          |          |          |
| ΦNE 03679  | SAV1543  | 106      |          |          |          |
| ΦNE 04447  | SAV1544  | 82       |          |          |          |
| ΦNE 05124  | SAV1545  | 95       |          |          |          |
| ΦNE 10927  | SAV1546  | 68       |          |          |          |
| ΦNE 01495  | SAV1547  | 49       | 100      |          |          |
| ΦNE 09080  | SAV1549  | 55       | 96       |          |          |
| ΦNE 00130  | SAV1550  | 85       |          |          |          |
| ΦNE 11029  | SAV1555  | 127      |          |          |          |
| ΦNE 00845  | SAV1556  | 82       |          |          |          |
| ΦNE 05095  | SAV1557  | 100      |          |          |          |

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 10627         | SAV1558    | 79              |                 |                 |                 |
| ΦNE 03909         | SAV1563    | 100             |                 |                 |                 |
| ΦNE 10839         | SAV1571    | 86              |                 |                 |                 |
| ΦNE 06393         | SAV1572    | 153             |                 |                 |                 |
| ΦNE 10437         | SAV1574    | 103             |                 |                 |                 |
| ΦNE 09721         | SAV1574    | 105             |                 |                 |                 |
| ΦNE 05130         | SAV1576    | 100             |                 |                 |                 |
| ΦNE 00034         | SAV1577    | 69              |                 |                 |                 |
| ΦNE 00481         | SAV1583    | 85              |                 |                 |                 |
| ΦNE 15237         | SAV1585    | 70              | 100             |                 |                 |
| ΦNE 03153         | SAV1588    | 19              | 35              | 43              | 98              |
| ΦNE 15341         | SAV1589    | 90              |                 |                 |                 |
| ΦNE 04436         | SAV1590    | 76              |                 |                 |                 |
| ΦNE 03417         | SAV1591    | 79              |                 |                 |                 |
| ΦNE 13165         | SAV1593    | 67              | 104             |                 |                 |
| ΦNE 01788         | SAV1596    | 74              | 100             |                 |                 |
| ΦNE 09942         | SAV1596    | 105             |                 |                 |                 |
| ΦNE 14659         | SAV1600    | 87              |                 |                 |                 |
| ΦNE 10658         | SAV1601    | 90              |                 |                 |                 |
| ΦNE 05136         | SAV1603    | 100             |                 |                 |                 |
| ΦNE 03405         | SAV1604    | 105             |                 |                 |                 |
| ΦNE 00048         | SAV1606    | 81              |                 |                 |                 |
| ΦNE 02005         | SAV1606    | 84              |                 |                 |                 |
| ΦNE 00810         | SAV1607    | 87              |                 |                 |                 |
| ΦNE 05512         | SAV1609    | 105             |                 |                 |                 |
| ΦNE 13426         | SAV1610    | 96              |                 |                 |                 |
| ΦNE 02786         | SAV1611    | 125             |                 |                 |                 |
| ΦNE 10251         | SAV1612    | 105             |                 |                 |                 |
| ΦNE 05586         | SAV1613    | 105             |                 |                 |                 |
| ΦNE 02797         | SAV1614    | 125             |                 |                 |                 |
| ΦNE 09933         | SAV1614    | 105             |                 |                 |                 |
| ΦNE 13374         | SAV1616    | 92              |                 |                 |                 |
| ΦNE 13118         | SAV1617    | 51              |                 |                 |                 |
| ΦNE 01851         | SAV1619    | 16              | 70              | 22              | 63              |
| ΦNE 03924         | SAV1619    | 75              | 30              | 53              | 78              |
| ΦNE 12141         | SAV1620    | 38              | 76              |                 | 84              |
| ΦNE 00281         | SAV1623    | 95              |                 |                 |                 |
| ΦNE 10418         | SAV1624    | 103             |                 |                 |                 |
| ΦNE 09949         | SAV1625    | 95              | 90              |                 |                 |
| ΦNE 03264         | SAV1627    | 37              | 70              | 88              | 98              |
| ΦNE 11865         | SAV1628    | 88              |                 |                 |                 |
| ΦNE 02307         | SAV1632    | 105             |                 |                 |                 |
| ΦNE 12680         | SAV1635    | 97              |                 |                 |                 |
| ΦNE 00874         | SAV1636    | 67              |                 |                 |                 |
| ΦNE 02425         | SAV1638    | 95              |                 |                 |                 |

| Mutant no. | ORF     | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|---------|----------|----------|----------|----------|
| ΦNE 03502  | SAV1638 | 105      |          |          |          |
| ΦNE 03576  | SAV1639 | 89       |          |          |          |
| ΦNE 02724  | SAV1640 | 119      |          |          |          |
| ΦNE 08942  | SAV1645 | 51       | 79       |          | 98       |
| ΦNE 04763  | SAV1651 | 100      |          |          |          |
| ΦNE 13114  | SAV1660 | 102      |          |          |          |
| ΦNE 04873  | SAV1661 | 100      |          |          |          |
| ΦNE 09611  | SAV1664 | 105      |          |          |          |
| ΦNE 00482  | SAV1665 | 85       |          |          |          |
| ΦNE 00691  | SAV1667 | 40       | 100      |          |          |
| ΦNE 09787  | SAV1674 | 105      |          |          |          |
| ΦNE 11361  | SAV1675 | 123      |          |          |          |
| ΦNE 00815  | SAV1676 | 26       | 95       |          |          |
| ΦNE 01639  | SAV1677 | 21       | 35       | 18       | 48       |
| ΦNE 01982  | SAV1687 | 16       | 50       | 22       |          |
| ΦNE 11111  | SAV1689 | 123      |          |          |          |
| ΦNE 05527  | SAV1690 | 100      |          |          |          |
| ΦNE 06260  | SAV1691 | 169      |          |          |          |
| ΦNE 03695  | SAV1692 | 47       | 90       |          |          |
| ΦNE 14551  | SAV1693 | 100      |          |          |          |
| ΦNE 05271  | SAV1694 | 70       | 90       |          |          |
| ΦNE 06106  | SAV1695 | 188      |          |          |          |
| ΦNE 13092  | SAV1697 | 100      |          |          |          |
| ΦNE 01819  | SAV1706 | 16       | 85       | 73       | 100      |
| ΦNE 14013  | SAV1707 | 80       | 96       |          |          |
| ΦNE 10478  | SAV1708 | 91       |          |          |          |
| ΦNE 02179  | SAV1709 | 105      |          |          |          |
| ΦNE 10024  | SAV1710 | 105      |          |          |          |
| ΦNE 09686  | SAV1712 | 105      |          |          |          |
| ΦNE 09756  | SAV1713 | 105      |          |          |          |
| ΦNE 12153  | SAV1714 | 54       | 97       |          |          |
| ΦNE 00831  | SAV1716 | 46       | 100      |          |          |
| ΦNE 13546  | SAV1718 | 102      |          |          |          |
| ΦNE 09295  | SAV1721 | 103      |          |          |          |
| ΦNE 06110  | SAV1722 | 144      |          |          |          |
| ΦNE 02692  | SAV1723 | 119      |          |          |          |
| ΦNE 05575  | SAV1724 | 105      |          |          |          |
| ΦNE 09771  | SAV1725 | 100      | 70       | 84       | 75       |
| ΦNE 01769  | SAV1726 | 100      |          |          |          |
| ΦNE 05535  | SAV1728 | 100      |          |          |          |
| ΦNE 05285  | SAV1730 | 75       | 80       | 109      |          |
| ΦNE 06315  | SAV1731 | 163      |          |          |          |
| ΦNE 00742  | SAV1731 | 100      |          |          | 94       |
| ΦNE 04341  | SAV1732 | 32       | 90       |          |          |
| ΦNE 00456  | SAV1733 | 100      | 100      |          |          |



| Mutant no. | ORF     | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|---------|----------|----------|----------|----------|
| ΦNE 09642  | SAV1734 | 105      |          |          |          |
| ΦNE 03717  | SAV1735 | 65       |          |          |          |
| ΦNE 11822  | SAV1736 | 88       |          |          |          |
| ΦNE 12369  | SAV1744 | 57       | 93       |          |          |
| ΦNE 09978  | SAV1745 | 105      |          |          |          |
| ΦNE 13099  | SAV1746 | 100      |          |          |          |
| ΦNE 05495  | SAV1747 | 100      |          |          |          |
| ΦNE 00370  | SAV1750 | 70       |          |          |          |
| ΦNE 06678  | SAV1751 | 92       |          |          |          |
| ΦNE 06780  | SAV1752 | 60       | 96       |          |          |
| ΦNE 03027  | SAV1753 | 50       | 80       | 78       | 100      |
| ΦNE 01581  | SAV1755 | 91       |          |          |          |
| ΦNE 01809  | SAV1756 | 105      |          |          |          |
| ΦNE 04980  | SAV1758 | 100      |          |          |          |
| ΦNE 00208  | SAV1758 | 92       |          |          | 104      |
| ΦNE 05106  | SAV1758 | 95       |          |          |          |
| ΦNE 04981  | SAV1761 | 100      |          |          |          |
| ΦNE 00074  | SAV1762 | 90       |          |          |          |
| ΦNE 05156  | SAV1763 | 95       |          |          |          |
| ΦNE 11740  | SAV1765 | 77       |          |          |          |
| ΦNE 13818  | SAV1766 | 96       |          |          |          |
| ΦNE 00862  | SAV1768 | 103      |          |          |          |
| ΦNE 14759  | SAV1769 | 100      |          |          |          |
| ΦNE 04855  | SAV1770 | 100      |          |          |          |
| ΦNE 03534  | SAV1771 | 100      |          |          |          |
| ΦNE 02541  | SAV1772 | 100      |          |          |          |
| ΦNE 02899  | SAV1772 | 125      |          |          |          |
| ΦNE 11851  | SAV1773 | 96       |          |          |          |
| ΦNE 03743  | SAV1774 | 100      |          |          |          |
| ΦNE 06358  | SAV1775 | 172      |          |          |          |
| ΦNE 09741  | SAV1777 | 105      |          |          |          |
| ΦNE 11323  | SAV1778 | 105      |          |          |          |
| ΦNE 09124  | SAV1779 | 90       | 93       |          |          |
| ΦNE 00247  | SAV1780 | 85       |          |          |          |
| ΦNE 04924  | SAV1784 | 100      |          |          |          |
| ΦNE 02929  | SAV1785 | 63       | 95       |          |          |
| ΦNE 05157  | SAV1787 | 100      |          |          |          |
| ΦNE 13264  | SAV1788 | 90       | 107      |          |          |
| ΦNE 01969  | SAV1791 | 16       | 5        |          | 90       |
| ΦNE 05533  | SAV1793 | 105      |          |          |          |
| ΦNE 13076  | SAV1794 | 100      |          |          |          |
| ΦNE 13249  | SAV1796 | 100      |          |          |          |
| ΦNE 11082  | SAV1798 | 64       | 86       |          |          |
| ΦNE 04503  | SAV1801 | 118      |          |          |          |
| ΦNE 04108  | SAV1803 | 106      |          |          |          |

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 05478         | SAV1805    | 105             |                 |                 |                 |
| ΦNE 04948         | SAV1807    | 100             |                 |                 |                 |
| ΦNE 03260         | SAV1808    | 42              | 85              | 78              | 100             |
| ΦNE 05473         | SAV1808    | 100             |                 |                 |                 |
| ΦNE 06104         | SAV1809    | 169             |                 |                 |                 |
| ΦNE 02814         | SAV1810    | 125             |                 |                 |                 |
| ΦNE 11075         | SAV1811    | 100             |                 |                 |                 |
| ΦNE 12789         | SAV1813    | 97              |                 |                 |                 |
| ΦNE 01785         | SAV1814    | 105             |                 |                 |                 |
| ΦNE 03169         | SAV1815    | 69              | 90              |                 |                 |
| ΦNE 13601         | SAV1819    | 100             |                 |                 |                 |
| ΦNE 08984         | SAV1820    | 92              |                 |                 |                 |
| ΦNE 03521         | SAV1821    | 95              |                 |                 |                 |
| ΦNE 09153         | SAV1835    | 88              | 104             |                 |                 |
| ΦNE 01973         | SAV1838    | 105             |                 |                 |                 |
| ΦNE 11581         | SAV1839    | 54              | 76              |                 | 96              |
| ΦNE 09667         | SAV1840    | 105             |                 |                 |                 |
| ΦNE 09920         | SAV1842    | 105             |                 |                 |                 |
| ΦNE 00631         | SAV1843    | 70              |                 |                 |                 |
| ΦNE 03798         | SAV1844    | 118             |                 |                 |                 |
| ΦNE 04904         | SAV1846    | 95              |                 |                 |                 |
| ΦNE 06189         | SAV1848    | 84              | 100             |                 |                 |
| ΦNE 03790         | SAV1849    | 106             |                 |                 |                 |
| ΦNE 13245         | SAV1850    | 88              | 100             |                 |                 |
| ΦNE 01596         | SAV1851    | 12              |                 |                 |                 |
| ΦNE 03937         | SAV1851    | 25              | 30              |                 | 63              |
| ΦNE 00748         | SAV1852    | 85              |                 |                 |                 |
| ΦNE 11183         | SAV1854    | 82              | 64.9            |                 |                 |
| ΦNE 04023         | SAV1856    | 60              | 65              | 75              | 100             |
| ΦNE 09706         | SAV1857    | 105             |                 |                 |                 |
| ΦNE 09524         | SAV1858    | 32              | 96              |                 |                 |
| ΦNE 05062         | SAV1859    | 100             |                 |                 |                 |
| ΦNE 01520         | SAV1862    | 61              | 100             |                 |                 |
| ΦNE 05104         | SAV1863    | 90              |                 |                 |                 |
| ΦNE 15185         | SAV1864    | 97              |                 |                 |                 |
| ΦNE 01784         | SAV1865    | 105             |                 |                 |                 |
| ΦNE 04859         | SAV1866    | 95              |                 |                 |                 |
| ΦNE 00194         | SAV1868    | 95              |                 |                 |                 |
| ΦNE 03703         | SAV1870    | 35              | 70              | 97              |                 |
| ΦNE 12992         | SAV1871    | 100             |                 |                 | 98              |
| ΦNE 12899         | SAV1873    | 53              | 75              |                 | 96              |
| ΦNE 06284         | SAV1874    | 150             |                 |                 |                 |
| ΦNE 03774         | SAV1875    | 41              | 90              |                 |                 |
| ΦNE 09071         | SAV1877    | 76              | 114             |                 |                 |
| ΦNE 03400         | SAV1879    | 100             |                 |                 |                 |

| Mutant no. | ORF     | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|---------|----------|----------|----------|----------|
| ΦNE 03575  | SAV1880 | 89       |          |          |          |
| ΦNE 15208  | SAV1881 | 83       | 104      |          |          |
| ΦNE 06353  | SAV1883 | 91       | 72.4     |          |          |
| ΦNE 02993  | SAV1884 | 69       | 45       | 67       | 95       |
| ΦNE 03821  | SAV1885 | 70       | 70       | 68       | 98       |
| ΦNE 02960  | SAV1886 | 88       | 95       |          |          |
| ΦNE 08685  | SAV1887 | 100      |          |          |          |
| ΦNE 11839  | SAV1889 | 113      |          |          |          |
| ΦNE 13487  | SAV1890 | 102      |          |          |          |
| ΦNE 06497  | SAV1893 | 144      |          |          |          |
| ΦNE 03231  | SAV1894 | 105      |          |          |          |
| ΦNE 04966  | SAV1896 | 95       |          |          |          |
| ΦNE 00136  | SAV1897 | 100      |          |          |          |
| ΦNE 00137  | SAV1897 | 100      |          |          |          |
| ΦNE 10870  | SAV1897 | 93       | 55       | 97       |          |
| ΦNE 11673  | SAV1902 | 79       |          |          |          |
| ΦNE 11997  | SAV1903 | 38       | 72       |          | 100      |
| ΦNE 01622  | SAV1906 | 95       |          |          |          |
| ΦNE 01592  | SAV1907 | 55       | 100      |          |          |
| ΦNE 05144  | SAV1908 | 100      |          |          |          |
| ΦNE 06249  | SAV1909 | 98       |          |          |          |
| ΦNE 04478  | SAV1911 | 65       | 90       |          |          |
| ΦNE 04134  | SAV1914 | 95       |          |          |          |
| ΦNE 09372  | SAV1915 | 68       |          |          |          |
| ΦNE 00718  | SAV1916 | 65       |          |          |          |
| ΦNE 02291  | SAV1917 | 89       |          |          |          |
| ΦNE 04769  | SAV1918 | 35       | 40       | 73       | 82       |
| ΦNE 04846  | SAV1922 | 100      |          |          |          |
| ΦNE 01723  | SAV1924 | 95       |          |          |          |
| ΦNE 05468  | SAV1925 | 105      |          |          |          |
| ΦNE 04883  | SAV1926 | 0        | 10       | 38       | 30       |
| ΦNE 11080  | SAV1927 | 41       | 45       |          | 20       |
| ΦNE 01449  | SAV1928 | 67       | 35       | 23       | 15       |
| ΦNE 11264  | SAV1929 | 55       | 38.6     |          |          |
| ΦNE 01508  | SAV1932 | 49       | 90       | 55       | 97       |
| ΦNE 12158  | SAV1933 | 42       | 62       |          | 98       |
| ΦNE 09620  | SAV1934 | 105      |          |          |          |
| ΦNE 13110  | SAV1935 | 98       |          |          |          |
| ΦNE 02967  | SAV1936 | 88       |          |          |          |
| ΦNE 04149  | SAV1938 | 79       |          |          |          |
| ΦNE 09659  | SAV1938 | 105      |          |          |          |
| ΦNE 03698  | SAV1939 | 94       |          |          |          |
| ΦNE 09316  | SAV1941 | 123      |          |          |          |
| ΦNE 02996  | SAV1945 | 88       |          |          |          |
| ΦNE 03552  | SAV1948 | 89       |          |          |          |

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 04335         | SAV1951    | 100             |                 |                 |                 |
| ΦNE 12961         | SAV1952    | 100             |                 |                 |                 |
| ΦNE 04092         | SAV1953    | 118             |                 |                 |                 |
| ΦNE 02902         | SAV1953    | 125             |                 |                 |                 |
| ΦNE 01647         | SAV1954    | 89              |                 |                 |                 |
| ΦNE 00355         | SAV1955    | 85              |                 |                 |                 |
| ΦNE 04496         | SAV1957    | 118             |                 |                 |                 |
| ΦNE 00548         | SAV1958    | 70              |                 |                 |                 |
| ΦNE 05637         | SAV1959    | 105             |                 |                 |                 |
| ΦNE 11198         | SAV1960    | 109             |                 |                 |                 |
| ΦNE 12540         | SAV1962    | 57              | 96              |                 |                 |
| ΦNE 11765         | SAV1964    | 118             |                 |                 |                 |
| ΦNE 06327         | SAV1965    | 50              | 41.4            |                 |                 |
| ΦNE 04147         | SAV1966    | 58              | 100             |                 |                 |
| ΦNE 03672         | SAV1967    | 65              |                 |                 |                 |
| ΦNE 03058         | SAV1968    | 44              | 80              | 87              | 98              |
| ΦNE 00613         | SAV1969    | 85              |                 |                 |                 |
| ΦNE 00311         | SAV1970    | 100             |                 |                 |                 |
| ΦNE 03622         | SAV1974    | 94              |                 |                 |                 |
| ΦNE 06446         | SAV1976    | 169             |                 |                 |                 |
| ΦNE 05162         | SAV1977    | 95              |                 |                 |                 |
| ΦNE 02679         | SAV1978    | 25              | 45              | 23              | 15              |
| ΦNE 11089         | SAV1980    | 109             |                 |                 |                 |
| ΦNE 04158         | SAV1980    | 37              | 80              | 88              | 97              |
| ΦNE 04765         | SAV1980    | 100             |                 |                 |                 |
| ΦNE 00050         | SAV1981    | 81              |                 |                 |                 |
| ΦNE 02109         | SAV1982    | 105             |                 |                 |                 |
| ΦNE 05258         | SAV1983    | 95              |                 |                 |                 |
| ΦNE 12674         | SAV1984    | 73              | 96              |                 |                 |
| ΦNE 03200         | SAV1986    | 38              | 60              | 83              | 28              |
| ΦNE 06697         | SAV1991    | 163             |                 |                 |                 |
| ΦNE 02683         | SAV1992    | 125             |                 | 48              |                 |
| ΦNE 01459         | SAV1992    | 98              |                 |                 |                 |
| ΦNE 03814         | SAV1994    | 75              |                 |                 |                 |
| ΦNE 09825         | SAV2001    | 105             |                 |                 |                 |
| ΦNE 09742         | SAV2002    | 105             |                 |                 |                 |
| ΦNE 04193         | SAV2003    | 53              | 100             |                 |                 |
| ΦNE 03288         | SAV2004    | 74              |                 |                 |                 |
| ΦNE 11331         | SAV2005    | 114             |                 |                 |                 |
| ΦNE 09440         | SAV2006    | 91              |                 |                 |                 |
| ΦNE 03441         | SAV2007    | 95              |                 |                 |                 |
| ΦNE 12603         | SAV2031    | 23              | 104             |                 |                 |
| ΦNE 01971         | SAV2034    | 105             |                 |                 |                 |
| ΦNE 04484         | SAV2034    | 65              |                 |                 |                 |
| ΦNE 04055         | SAV2036    | 65              | 30              |                 |                 |

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 05384         | SAV2038    | 89              | 95              |                 |                 |
| ΦNE 03938         | SAV2039    | 100             |                 |                 | 63              |
| ΦNE 03962         | SAV2040    | 100             |                 |                 |                 |
| ΦNE 03868         | SAV2041    | 30              | 35              |                 | 100             |
| ΦNE 05101         | SAV2042    | 100             |                 |                 |                 |
| ΦNE 04946         | SAV2043    | 85              | 55              | 62              | 95              |
| ΦNE 04413         | SAV2045    | 118             |                 |                 |                 |
| ΦNE 04397         | SAV2046    | 118             |                 |                 |                 |
| ΦNE 05103         | SAV2048    | 95              |                 |                 |                 |
| ΦNE 00752         | SAV2053    | 50              | 100             |                 |                 |
| ΦNE 10056         | SAV2055    | 105             |                 |                 |                 |
| ΦNE 03592         | SAV2058    | 68              |                 |                 |                 |
| ΦNE 11921         | SAV2059    | 63              | 100             |                 |                 |
| ΦNE 06357         | SAV2060    | 92              |                 |                 |                 |
| ΦNE 04802         | SAV2060*   | 95              |                 |                 |                 |
| ΦNE 00820         | SAV2061    | 56              | 95              |                 |                 |
| ΦNE 00789         | SAV2063    | 75              |                 |                 |                 |
| ΦNE 03805         | SAV2063    | 85              |                 |                 |                 |
| ΦNE 04540         | SAV2064    | 94              |                 |                 |                 |
| ΦNE 06056         | SAV2066    | 75              | 69              |                 |                 |
| ΦNE 00527         | SAV2067    | 60              | 95              |                 |                 |
| ΦNE 00556         | SAV2068    | 40              | 70              | 88              | 87              |
| ΦNE 09718         | SAV2069    | 105             |                 |                 |                 |
| ΦNE 13708         | SAV2070    | 22              |                 |                 |                 |
| ΦNE 04461         | SAV2073    | 112             |                 |                 |                 |
| ΦNE 03192         | SAV2074    | 113             |                 |                 |                 |
| ΦNE 09662         | SAV2075    | 105             |                 |                 |                 |
| ΦNE 03183         | SAV2077    | 94              |                 |                 |                 |
| ΦNE 02877         | SAV2078    | 125             |                 |                 |                 |
| ΦNE 00593         | SAV2078    | 100             |                 |                 |                 |
| ΦNE 04094         | SAV2079    | 100             |                 |                 |                 |
| ΦNE 12590         | SAV2081    | 37              | 46              |                 |                 |
| ΦNE 02828         | SAV2087    | 113             |                 |                 |                 |
| ΦNE 03083         | SAV2088    | 75              |                 |                 |                 |
| ΦNE 00196         | SAV2088    | 90              |                 |                 |                 |
| ΦNE 10618         | SAV2091    | 86              |                 |                 |                 |
| ΦNE 12882         | SAV2093    | 93              |                 |                 |                 |
| ΦNE 05639         | SAV2093    | 105             |                 |                 |                 |
| ΦNE 00426         | SAV2094    | 60              | 100             |                 |                 |
| ΦNE 05459         | SAV2096    | 105             |                 |                 |                 |
| ΦNE 02126         | SAV2101    | 105             |                 |                 |                 |
| ΦNE 02208         | SAV2104    | 74              | 100             |                 |                 |
| ΦNE 00209         | SAV2111    | 45              | 100             |                 |                 |
| ΦNE 03277         | SAV2112    | 89              |                 |                 |                 |
| ΦNE 09033         | SAV2113    | 24              | 96              |                 |                 |

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 11642         | SAV2114    | 67              | 66              |                 | 98              |
| ΦNE 03191         | SAV2115    | 100             |                 |                 |                 |
| ΦNE 03531         | SAV2117    | 16              | 35              | 55              | 92              |
| ΦNE 01625         | SAV2121    | 63              | 100             |                 |                 |
| ΦNE 03903         | SAV2122    | 75              | 95              |                 |                 |
| ΦNE 13125         | SAV2123    | 4               | 75              |                 |                 |
| ΦNE 04714         | SAV2124    | 100             |                 |                 |                 |
| ΦNE 00608         | SAV2129    | 80              |                 |                 |                 |
| ΦNE 09408         | SAV2131    | 50              | 82              |                 | 98              |
| ΦNE 11140         | SAV2132    | 123             |                 |                 |                 |
| ΦNE 01579         | SAV2133    | 73              |                 |                 |                 |
| ΦNE 03816         | SAV2133    | 90              |                 |                 |                 |
| ΦNE 15294         | SAV2134    | 73              | 104             |                 |                 |
| ΦNE 11538         | SAV2135    | 54              | 69              |                 | 98              |
| ΦNE 04729         | SAV2136    | 100             |                 |                 |                 |
| ΦNE 04697         | SAV2137    | 100             |                 |                 |                 |
| ΦNE 00644         | SAV2138    | 80              |                 |                 |                 |
| ΦNE 13004         | SAV2142    | 100             |                 |                 |                 |
| ΦNE 00297         | SAV2143    | 85              |                 |                 |                 |
| ΦNE 01875         | SAV2144    | 100             |                 |                 |                 |
| ΦNE 13492         | SAV2145    | 102             |                 |                 |                 |
| ΦNE 00173         | SAV2146    | 85              |                 |                 |                 |
| ΦNE 04069         | SAV2147    | 106             |                 |                 |                 |
| ΦNE 12714         | SAV2152    | 90              |                 |                 |                 |
| ΦNE 09777         | SAV2153    | 95              | 100             |                 |                 |
| ΦNE 01551         | SAV2156    | 85              |                 |                 |                 |
| ΦNE 04123         | SAV2157    | 89              |                 |                 |                 |
| ΦNE 12774         | SAV2158    | 50              | 96              |                 |                 |
| ΦNE 05401         | SAV2159    | 105             |                 |                 |                 |
| ΦNE 04909         | SAV2160    | 95              |                 |                 |                 |
| ΦNE 09330         | SAV2161    | 27              | 18              |                 |                 |
| ΦNE 13821         | SAV2162    | 102             |                 |                 |                 |
| ΦNE 09246         | SAV2164    | 76              | 63.6            | 57.9            |                 |
| ΦNE 01617         | SAV2166    | 105             |                 |                 |                 |
| ΦNE 03603         | SAV2167    | 12              | 65              | 72              | 67              |
| ΦNE 01945         | SAV2168    | 84              |                 |                 |                 |
| ΦNE 03806         | SAV2169    | 75              | 90              |                 |                 |
| ΦNE 04933         | SAV2170    | 95              |                 |                 | 105             |
| ΦNE 03929         | SAV2171    | 85              |                 |                 |                 |
| ΦNE 04558         | SAV2172    | 118             |                 |                 |                 |
| ΦNE 00414         | SAV2174    | 85              |                 |                 |                 |
| ΦNE 03244         | SAV2174    | 100             |                 |                 |                 |
| ΦNE 04180         | SAV2175    | 53              | 75              | 95              | 98              |
| ΦNE 05526         | SAV2176    | 105             |                 |                 |                 |
| ΦNE 06699         | SAV2177    | 150             |                 |                 |                 |

| Mutant no. | ORF      | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|----------|----------|----------|----------|----------|
| ΦNE 00049  | SAV2178  | 75       |          |          |          |
| ΦNE 12559  | SAV2179  | 90       |          |          |          |
| ΦNE 02896  | SAV2180  | 88       | 85       |          | 100      |
| ΦNE 11381  | SAV2181  | 127      |          |          |          |
| ΦNE 11306  | SAV2184  | 100      |          |          |          |
| ΦNE 09843  | SAV2185  | 105      |          |          |          |
| ΦNE 00615  | SAV2187  | 85       |          |          |          |
| ΦNE 04401  | SAV2188  | 112      |          |          |          |
| ΦNE 04314  | SAV2189  | 32       | 75       | 64       | 98       |
| ΦNE 05243  | SAV2189  | 90       |          |          |          |
| ΦNE 06472  | SAV2190  | 175      |          |          |          |
| ΦNE 06631  | SAV2191* | 163      |          |          |          |
| ΦNE 03563  | SAV2192  | 74       |          |          |          |
| ΦNE 02796  | SAV2193  | 119      |          |          |          |
| ΦNE 00103  | SAV2194  | 90       |          |          |          |
| ΦNE 03251  | SAV2194  | 89       |          |          |          |
| ΦNE 00445  | SAV2197  | 55       | 100      |          |          |
| ΦNE 09119  | SAV2200  | 31       | 89       |          | 100      |
| ΦNE 15274  | SAV2201  | 87       |          |          |          |
| ΦNE 03517  | SAV2202  | 74       |          |          |          |
| ΦNE 12117  | SAV2203  | 79       |          |          |          |
| ΦNE 04489  | SAV2204  | 76       |          |          |          |
| ΦNE 02906  | SAV2204  | 119      |          |          |          |
| ΦNE 08826  | SAV2206  | 94       |          |          |          |
| ΦNE 03959  | SAV2207  | 100      |          |          |          |
| ΦNE 06362  | SAV2219  | 150      |          |          |          |
| ΦNE 05576  | SAV2252  | 105      |          |          |          |
| ΦNE 05438  | SAV2253  | 105      |          |          |          |
| ΦNE 04663  | SAV2254  | 118      |          |          |          |
| ΦNE 04767  | SAV2254  | 100      |          |          |          |
| ΦNE 03598  | SAV2255  | 63       | 95       |          |          |
| ΦNE 01500  | SAV2256  | 91       |          |          |          |
| ΦNE 01901  | SAV2258  | 89       |          |          |          |
| ΦNE 00436  | SAV2261  | 100      |          |          |          |
| ΦNE 03285  | SAV2261  | 95       |          |          |          |
| ΦNE 10966  | SAV2265  | 109      |          |          | 100      |
| ΦNE 03874  | SAV2266  | 85       |          |          |          |
| ΦNE 05250  | SAV2268  | 100      |          |          |          |
| ΦNE 04699  | SAV2269  | 100      |          |          |          |
| ΦNE 03509  | SAV2270  | 105      |          |          |          |
| ΦNE 01567  | SAV2271  | 116      |          |          |          |
| ΦNE 03209  | SAV2271  | 89       |          |          |          |
| ΦNE 11375  | SAV2273  | 109      |          |          |          |
| ΦNE 00662  | SAV2273  | 65       |          |          |          |
| ΦNE 03257  | SAV2274  | 95       |          |          |          |

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 12467         | SAV2276    | 93              |                 |                 |                 |
| ΦNE 04648         | SAV2277    | 118             |                 |                 |                 |
| ΦNE 02985         | SAV2279    | 100             |                 |                 |                 |
| ΦNE 04839         | SAV2280    | 95              |                 |                 |                 |
| ΦNE 03843         | SAV2281    | 80              |                 |                 |                 |
| ΦNE 04375         | SAV2283    | 76              |                 |                 |                 |
| ΦNE 03239         | SAV2283    | 105             |                 |                 |                 |
| ΦNE 13637         | SAV2284    | 88              | 100             |                 |                 |
| ΦNE 03275         | SAV2285    | 79              |                 |                 |                 |
| ΦNE 03011         | SAV2287    | 63              | 90              |                 |                 |
| ΦNE 05068         | SAV2290    | 95              |                 |                 |                 |
| ΦNE 09184         | SAV2292    | 82              | 96              |                 |                 |
| ΦNE 01475         | SAV2293    | 110             |                 |                 |                 |
| ΦNE 12725         | SAV2294    | 93              |                 |                 |                 |
| ΦNE 03045         | SAV2297    | 63              | 80              | 55              | 100             |
| ΦNE 03230         | SAV2298    | 89              |                 |                 |                 |
| ΦNE 09996         | SAV2300    | 105             |                 |                 |                 |
| ΦNE 02916         | SAV2301    | 75              | 90              |                 |                 |
| ΦNE 11716         | SAV2302    | 118             |                 |                 |                 |
| ΦNE 05455         | SAV2304    | 105             |                 |                 |                 |
| ΦNE 11098         | SAV2305    | 127             |                 |                 |                 |
| ΦNE 03759         | SAV2306    | 94              |                 |                 |                 |
| ΦNE 11146         | SAV2306    | 123             |                 |                 |                 |
| ΦNE 09134         | SAV2307    | 86              | 86              |                 | 98              |
| ΦNE 04836         | SAV2309    | 100             |                 |                 |                 |
| ΦNE 03707         | SAV2310    | 112             | 20              | 43              | 97              |
| ΦNE 03164         | SAV2311    | 69              | 100             |                 |                 |
| ΦNE 04299         | SAV2313    | 105             |                 |                 |                 |
| ΦNE 03658         | SAV2313    | 100             |                 |                 |                 |
| ΦNE 02969         | SAV2314    | 119             |                 |                 |                 |
| ΦNE 05372         | SAV2315    | 100             |                 |                 |                 |
| ΦNE 02289         | SAV2315    | 74              | 100             |                 |                 |
| ΦNE 01488         | SAV2316    | 116             |                 |                 |                 |
| ΦNE 10856         | SAV2317    | 91              |                 |                 |                 |
| ΦNE 04077         | SAV2318    | 94              |                 |                 |                 |
| ΦNE 12860         | SAV2320    | 53              | 104             |                 |                 |
| ΦNE 03233         | SAV2321    | 105             |                 |                 |                 |
| ΦNE 12342         | SAV2322    | 57              | 93              |                 |                 |
| ΦNE 09671         | SAV2323    | 100             | 100             |                 |                 |
| ΦNE 12551         | SAV2324    | 83              | 100             |                 |                 |
| ΦNE 00733         | SAV2326    | 50              | 100             |                 |                 |
| ΦNE 04482         | SAV2327    | 59              | 85              | 55              | 100             |
| ΦNE 08886         | SAV2328    | 73              | 107             |                 |                 |
| ΦNE 01836         | SAV2329    | 105             |                 |                 |                 |
| ΦNE 04251         | SAV2330    | 100             |                 |                 |                 |



| Mutant no. | ORF     | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|---------|----------|----------|----------|----------|
| ΦNE 03839  | SAV2331 | 95       |          |          |          |
| ΦNE 11894  | SAV2332 | 88       |          |          |          |
| ΦNE 09848  | SAV2333 | 105      |          |          |          |
| ΦNE 03723  | SAV2334 | 71       |          |          |          |
| ΦNE 12843  | SAV2335 | 100      |          |          |          |
| ΦNE 01722  | SAV2337 | 84       |          |          |          |
| ΦNE 04091  | SAV2338 | 112      |          |          |          |
| ΦNE 11404  | SAV2339 | 132      |          |          |          |
| ΦNE 04934  | SAV2340 | 45       | 80       | 58       | 98       |
| ΦNE 06075  | SAV2341 | 128      |          |          |          |
| ΦNE 01529  | SAV2342 | 61       | 95       |          |          |
| ΦNE 03262  | SAV2344 | 47       | 95       |          |          |
| ΦNE 00352  | SAV2345 | 55       | 90       | 100      |          |
| ΦNE 00096  | SAV2347 | 80       |          |          |          |
| ΦNE 06759  | SAV2348 | 73       | 82, 77   |          | 100      |
| ΦNE 11256  | SAV2350 | 109      |          |          |          |
| ΦNE 03560  | SAV2352 | 100      |          |          |          |
| ΦNE 05190  | SAV2354 | 95       |          |          |          |
| ΦNE 02193  | SAV2355 | 89       |          |          |          |
| ΦNE 00737  | SAV2356 | 45       |          |          |          |
| ΦNE 01835  | SAV2356 | 11       | 75       | 28       |          |
| ΦNE 05293  | SAV2358 | 95       |          |          |          |
| ΦNE 03177  | SAV2359 | 113      |          |          |          |
| ΦNE 02861  | SAV2360 | 125      |          |          |          |
| ΦNE 08752  | SAV2360 | 76       | 100      |          |          |
| ΦNE 02823  | SAV2361 | 113      |          |          |          |
| ΦNE 01562  | SAV2362 | 116      |          |          |          |
| ΦNE 08907  | SAV2363 | 82       | 100      |          |          |
| ΦNE 00141  | SAV2365 | 60       | 90       | 98       |          |
| ΦNE 03728  | SAV2366 | 41       | 95       |          |          |
| ΦNE 00287  | SAV2367 | 80       |          |          |          |
| ΦNE 02684  | SAV2368 | 125      |          |          |          |
| ΦNE 09868  | SAV2369 | 105      |          |          |          |
| ΦNE 03958  | SAV2370 | 95       |          |          |          |
| ΦNE 04025  | SAV2371 | 65       | 90       |          |          |
| ΦNE 03496  | SAV2372 | 100      |          |          |          |
| ΦNE 00682  | SAV2373 | 85       |          |          |          |
| ΦNE 01600  | SAV2374 | 110      |          |          |          |
| ΦNE 02788  | SAV2374 | 125      |          |          |          |
| ΦNE 07192  | SAV2375 | 90       |          |          |          |
| ΦNE 04551  | SAV2376 | 53       | 100      |          |          |
| ΦNE 01749  | SAV2377 | 95       |          |          |          |
| ΦNE 08917  | SAV2378 | 92       |          |          |          |
| ΦNE 09727  | SAV2381 | 100      | 95       |          |          |
| ΦNE 09162  | SAV2382 | 102      |          |          |          |

| Mutant no. | ORF      | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|----------|----------|----------|----------|----------|
| ΦNE 03890  | SAV2383  | 95       |          |          |          |
| ΦNE 09969  | SAV2384  | 105      |          |          |          |
| ΦNE 00203  | SAV2385  | 95       |          |          |          |
| ΦNE 02310  | SAV2386  | 84       |          |          |          |
| ΦNE 11343  | SAV2388  | 118      |          |          |          |
| ΦNE 01640  | SAV2389  | 105      |          |          |          |
| ΦNE 13220  | SAV2390  | 100      |          |          |          |
| ΦNE 00428  | SAV2392  | 100      |          |          |          |
| ΦNE 10970  | SAV2393  | 136      |          |          |          |
| ΦNE 00117  | SAV2394  | 100      |          |          |          |
| ΦNE 03599  | SAV2395  | 47       | 95       |          |          |
| ΦNE 04939  | SAV2396  | 90       |          |          |          |
| ΦNE 01710  | SAV2397  | 16       | 95       |          |          |
| ΦNE 05110  | SAV2397  | 95       |          |          |          |
| ΦNE 12701  | SAV2398* | 73       | 79       |          | 98       |
| ΦNE 05367  | SAV2399  | 100      |          |          |          |
| ΦNE 09981  | SAV2399  | 105      |          |          |          |
| ΦNE 00448  | SAV2400  | 60       | 100      |          |          |
| ΦNE 02449  | SAV2401  | 105      |          |          |          |
| ΦNE 05127  | SAV2404  | 100      |          |          |          |
| ΦNE 00423  | SAV2405  | 75       |          |          |          |
| ΦNE 05619  | SAV2406  | 100      |          |          |          |
| ΦNE 00671  | SAV2409  | 75       |          |          |          |
| ΦNE 10967  | SAV2410  | 127      |          |          |          |
| ΦNE 02665  | SAV2411  | 105      |          |          |          |
| ΦNE 05574  | SAV2412  | 105      |          |          |          |
| ΦNE 10833  | SAV2414  | 76       | 36.4     | 19.3     |          |
| ΦNE 03616  | SAV2415  | 88       |          |          |          |
| ΦNE 01732  | SAV2416  | 95       |          |          |          |
| ΦNE 01483  | SAV2417  | 116      |          |          |          |
| ΦNE 03151  | SAV2418  | 88       |          |          |          |
| ΦNE 00267  | SAV2418  | 75       |          |          |          |
| ΦNE 05500  | SAV2420  | 105      |          |          |          |
| ΦNE 11423  | SAV2421  | 73       |          |          |          |
| ΦNE 09907  | SAV2422  | 105      |          |          |          |
| ΦNE 04521  | SAV2424  | 106      |          |          |          |
| ΦNE 00654  | SAV2425  | 75       |          |          |          |
| ΦNE 12770  | SAV2426  | 60       | 96       |          |          |
| ΦNE 09971  | SAV2427  | 105      |          |          |          |
| ΦNE 05360  | SAV2428  | 100      |          |          |          |
| ΦNE 12818  | SAV2429  | 40       | 86       |          |          |
| ΦNE 11692  | SAV2432  | 29       | 97       |          |          |
| ΦNE 01542  | SAV2433  | 98       |          |          |          |
| ΦNE 04828  | SAV2434  | 90       |          |          |          |
| ΦNE 03511  | SAV2436  | 100      |          |          |          |

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 00312         | SAV2436    | 95              |                 |                 |                 |
| ΦNE 06150         | SAV2436    | 128             |                 |                 |                 |
| ΦNE 02428         | SAV2437    | 105             |                 |                 |                 |
| ΦNE 03152         | SAV2438    | 106             |                 |                 |                 |
| ΦNE 04415         | SAV2439    | 94              |                 |                 |                 |
| ΦNE 10025         | SAV2440    | 105             |                 |                 |                 |
| ΦNE 04529         | SAV2441    | 118             |                 |                 |                 |
| ΦNE 11498         | SAV2442    | 67              | 79              |                 | 96              |
| ΦNE 05078         | SAV2443    | 100             |                 |                 |                 |
| ΦNE 03490         | SAV2444    | 95              |                 |                 |                 |
| ΦNE 04878         | SAV2445    | 100             |                 |                 |                 |
| ΦNE 04718         | SAV2446    | 100             |                 |                 |                 |
| ΦNE 14285         | SAV2448    | 100             |                 |                 |                 |
| ΦNE 04078         | SAV2449    | 100             |                 |                 |                 |
| ΦNE 04825         | SAV2450    | 80              | 100             |                 |                 |
| ΦNE 08781         | SAV2451    | 76              | 105             |                 |                 |
| ΦNE 06100         | SAV2452    | 78              | 100             |                 |                 |
| ΦNE 04174         | SAV2453    | 74              |                 |                 |                 |
| ΦNE 00440         | SAV2454    | 50              | 100             |                 |                 |
| ΦNE 05359         | SAV2455    | 100             |                 |                 |                 |
| ΦNE 05524         | SAV2458    | 105             |                 |                 |                 |
| ΦNE 04845         | SAV2459    | 90              |                 |                 |                 |
| ΦNE 09040         | SAV2460    | 93              |                 |                 |                 |
| ΦNE 03065         | SAV2462    | 44              | 55              | 88              | 97              |
| ΦNE 05105         | SAV2463    | 100             |                 |                 |                 |
| ΦNE 03694         | SAV2464    | 76              |                 |                 |                 |
| ΦNE 04010         | SAV2466    | 60              | 90              |                 |                 |
| ΦNE 05145         | SAV2467    | 95              |                 |                 |                 |
| ΦNE 04787         | SAV2468    | 100             |                 |                 |                 |
| ΦNE 03991         | SAV2469    | 100             |                 |                 |                 |
| ΦNE 04552         | SAV2469    | 118             |                 |                 |                 |
| ΦNE 03928         | SAV2470    | 90              |                 |                 |                 |
| ΦNE 04362         | SAV2473    | 112             |                 |                 |                 |
| ΦNE 00313         | SAV2476    | 100             |                 |                 |                 |
| ΦNE 05047         | SAV2477    | 90              |                 |                 |                 |
| ΦNE 03921         | SAV2478    | 95              |                 |                 |                 |
| ΦNE 02065         | SAV2479    | 84              |                 |                 |                 |
| ΦNE 06614         | SAV2480    | 163             |                 |                 |                 |
| ΦNE 00282         | SAV2481    | 80              |                 |                 |                 |
| ΦNE 11149         | SAV2483    | 27              | 90              |                 |                 |
| ΦNE 09762         | SAV2484    | 105             |                 |                 |                 |
| ΦNE 01846         | SAV2487    | 89              |                 |                 |                 |
| ΦNE 00390         | SAV2488    | 30              | 95              |                 |                 |
| ΦNE 03411         | SAV2488    | 95              |                 |                 |                 |
| ΦNE 00306         | SAV2489    | 100             |                 |                 |                 |

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 02020         | SAV2490    | 95              |                 |                 |                 |
| ΦNE 03705         | SAV2492    | 41              | 95              |                 |                 |
| ΦNE 10624         | SAV2493*   | 93              |                 |                 |                 |
| ΦNE 11084         | SAV2494    | 109             |                 |                 |                 |
| ΦNE 04326         | SAV2495    | 100             |                 |                 |                 |
| ΦNE 12431         | SAV2497    | 93              |                 |                 |                 |
| ΦNE 03242         | SAV2498    | 100             |                 |                 |                 |
| ΦNE 01952         | SAV2500    | 89              |                 |                 |                 |
| ΦNE 02964         | SAV2501    | 113             |                 |                 |                 |
| ΦNE 05396         | SAV2502    | 105             |                 |                 |                 |
| ΦNE 02646         | SAV2503    | 105             |                 |                 |                 |
| ΦNE 05115         | SAV2505    | 95              |                 |                 |                 |
| ΦNE 00576         | SAV2506    | 80              |                 |                 |                 |
| ΦNE 02437         | SAV2507    | 105             |                 |                 |                 |
| ΦNE 02984         | SAV2508    | 125             |                 |                 |                 |
| ΦNE 05634         | SAV2509    | 100             |                 |                 |                 |
| ΦNE 10441         | SAV2510    | 100             |                 |                 |                 |
| ΦNE 04803         | SAV2511    | 95              |                 |                 |                 |
| ΦNE 05605         | SAV2512    | 105             |                 |                 |                 |
| ΦNE 00223         | SAV2513    | 95              |                 |                 |                 |
| ΦNE 10052         | SAV2515    | 105             |                 |                 |                 |
| ΦNE 01975         | SAV2516    | 11              | 5               |                 | 91              |
| ΦNE 03402         | SAV2517    | 84              |                 |                 |                 |
| ΦNE 05603         | SAV2518    | 105             |                 |                 |                 |
| ΦNE 04104         | SAV2519    | 112             |                 |                 |                 |
| ΦNE 02392         | SAV2520    | 105             |                 |                 |                 |
| ΦNE 13298         | SAV2521    | 82              | 104             |                 |                 |
| ΦNE 10416         | SAV2522    | 83              |                 |                 |                 |
| ΦNE 11429         | SAV2523    | 83              |                 |                 |                 |
| ΦNE 03861         | SAV2525    | 100             |                 |                 |                 |
| ΦNE 09879         | SAV2526    | 100             | 100             |                 |                 |
| ΦNE 04500         | SAV2526    | 118             |                 |                 |                 |
| ΦNE 00284         | SAV2527    | 100             |                 |                 |                 |
| ΦNE 03486         | SAV2528    | 100             |                 |                 | 96              |
| ΦNE 04089         | SAV2529    | 106             |                 |                 |                 |
| ΦNE 08659         | SAV2530    | 83              |                 |                 |                 |
| ΦNE 03188         | SAV2531    | 88              |                 |                 |                 |
| ΦNE 05330         | SAV2532    | 100             |                 |                 |                 |
| ΦNE 10747         | SAV2534    | 97              |                 |                 |                 |
| ΦNE 00187         | SAV2535    | 80              |                 |                 | 105             |
| ΦNE 12724         | SAV2537    | 90              |                 |                 |                 |
| ΦNE 00373         | SAV2538    | 70              |                 |                 |                 |
| ΦNE 04017         | SAV2539    | 90              |                 |                 |                 |
| ΦNE 08702         | SAV2540    | 86              |                 |                 |                 |
| ΦNE 12224         | SAV2541    | 42              | 100             |                 |                 |

| Mutant no. | ORF     | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|---------|----------|----------|----------|----------|
| ΦNE 00643  | SAV2542 | 80       |          |          |          |
| ΦNE 11917  | SAV2543 | 100      |          |          |          |
| ΦNE 06492  | SAV2544 | 166      |          |          |          |
| ΦNE 14634  | SAV2546 | 63       | 61       |          |          |
| ΦNE 00319  | SAV2548 | 80       |          |          |          |
| ΦNE 04186  | SAV2549 | 37       | 75       | 83       | 100      |
| ΦNE 04437  | SAV2550 | 76       |          |          |          |
| ΦNE 09781  | SAV2550 | 105      |          |          |          |
| ΦNE 04953  | SAV2551 | 95       |          |          |          |
| ΦNE 01546  | SAV2552 | 91       |          |          |          |
| ΦNE 03159  | SAV2552 | 6        | 20       | 50       | 98       |
| ΦNE 00458  | SAV2554 | 35       | 100      |          |          |
| ΦNE 02145  | SAV2555 | 105      |          |          |          |
| ΦNE 04387  | SAV2557 | 82       |          |          |          |
| ΦNE 11762  | SAV2558 | 114      |          |          |          |
| ΦNE 01477  | SAV2560 | 61       | 100      |          |          |
| ΦNE 00022  | SAV2561 | 100      |          |          |          |
| ΦNE 03594  | SAV2561 | 89       |          |          |          |
| ΦNE 01602  | SAV2562 | 85       |          |          |          |
| ΦNE 02946  | SAV2563 | 94       |          |          |          |
| ΦNE 09114  | SAV2564 | 69       | 50       | 33.3     |          |
| ΦNE 04150  | SAV2565 | 105      |          |          |          |
| ΦNE 00516  | SAV2566 | 70       |          |          |          |
| ΦNE 03895  | SAV2566 | 100      |          |          |          |
| ΦNE 00792  | SAV2567 | 45       | 25       | 25       | 53       |
| ΦNE 02863  | SAV2567 | 75       | 55       |          | 48       |
| ΦNE 02695  | SAV2568 | 125      |          |          |          |
| ΦNE 00237  | SAV2569 | 90       |          |          |          |
| ΦNE 06710  | SAV2570 | 150      |          |          |          |
| ΦNE 08644  | SAV2571 | 94       |          |          |          |
| ΦNE 03781  | SAV2572 | 100      |          |          |          |
| ΦNE 10619  | SAV2573 | 93       |          |          |          |
| ΦNE 00838  | SAV2576 | 82       |          |          |          |
| ΦNE 04774  | SAV2576 | 100      |          |          |          |
| ΦNE 03283  | SAV2578 | 79       |          |          |          |
| ΦNE 11432  | SAV2579 | 46       | 90       |          |          |
| ΦNE 04358  | SAV2580 | 106      |          |          |          |
| ΦNE 14009  | SAV2581 | 90       |          |          |          |
| ΦNE 05189  | SAV2582 | 85       |          |          |          |
| ΦNE 11809  | SAV2583 | 83       |          |          |          |
| ΦNE 00657  | SAV2584 | 65       |          |          |          |
| ΦNE 02997  | SAV2584 | 81       |          |          |          |
| ΦNE 00421  | SAV2585 | 60       | 100      |          |          |
| ΦNE 10636  | SAV2587 | 97       |          |          |          |
| ΦNE 04914  | SAV2588 | 100      |          |          |          |

| Mutant no. | ORF      | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|----------|----------|----------|----------|----------|
| ΦNE 04893  | SAV2591  | 90       |          |          |          |
| ΦNE 03919  | SAV2594  | 90       |          |          |          |
| ΦNE 02296  | SAV2597  | 105      |          |          |          |
| ΦNE 06644  | SAV2599  | 166      |          |          |          |
| ΦNE 05452  | SAV2600  | 105      |          |          |          |
| ΦNE 12720  | SAV2602  | 73       | 89       |          |          |
| ΦNE 13035  | SAV2603  | 100      |          |          |          |
| ΦNE 00171  | SAV2604  | 95       |          |          |          |
| ΦNE 02730  | SAV2604  | 119      |          |          |          |
| ΦNE 04971  | SAV2605  | 100      |          |          |          |
| ΦNE 12975  | SAV2606  | 100      |          |          |          |
| ΦNE 00773  | SAV2607  | 80       |          |          |          |
| ΦNE 11441  | SAV2608  | 117      |          |          |          |
| ΦNE 04821  | SAV2609  | 95       |          |          |          |
| ΦNE 08980  | SAV2610  | 71       | 93       |          |          |
| ΦNE 04344  | SAV2612  | 100      |          |          |          |
| ΦNE 04535  | SAV2613  | 112      |          |          |          |
| ΦNE 06718  | SAV2614  | 163      |          |          |          |
| ΦNE 02034  | SAV2615  | 89       |          |          |          |
| ΦNE 04459  | SAV2616  | 112      |          |          |          |
| ΦNE 04385  | SAV2617  | 76       |          |          |          |
| ΦNE 02850  | SAV2618  | 100      |          |          |          |
| ΦNE 12167  | SAV2619  | 92       | 97       |          |          |
| ΦNE 13059  | SAV2620  | 100      |          |          |          |
| ΦNE 02612  | SAV2621  | 105      |          |          |          |
| ΦNE 04001  | SAV2622  | 90       |          |          |          |
| ΦNE 03977  | SAV2622  | 100      |          |          |          |
| ΦNE 03452  | SAV2623  | 100      |          |          |          |
| ΦNE 05069  | SAV2624  | 95       |          |          |          |
| ΦNE 05304  | SAV2625  | 75       | 90       |          |          |
| ΦNE 02121  | SAV2627  | 105      |          |          |          |
| ΦNE 02802  | SAV2629  | 125      |          |          |          |
| ΦNE 00826  | SAV2630  | 103      |          |          | 103      |
| ΦNE 13125  | SAV2630* | 4        | 75       |          | 76       |
| ΦNE 13153  | SAV2630* | 98       |          |          |          |
| ΦNE 05159  | SAV2631  | 100      |          |          |          |
| ΦNE 04271  | SAV2632  | 68       |          |          |          |
| ΦNE 05038  | SAV2633  | 100      |          |          |          |
| ΦNE 01608  | SAV2634  | 110      |          |          |          |
| ΦNE 04557  | SAV2635  | 112      |          |          |          |
| ΦNE 00400  | SAV2636  | 95       |          |          |          |
| ΦNE 09030  | SAV2637  | 80       | 79       |          | 100      |
| ΦNE 08682  | SAV2638  | 65       | 100      |          | 100      |
| ΦNE 13671  | SAV2639  | 86       | 104      |          |          |
| ΦNE 05231  | SAV2640  | 100      |          |          |          |

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 00382         | SAV2641    | 95              |                 |                 |                 |
| ΦNE 04717         | SAV2642    | 95              |                 |                 |                 |
| ΦNE 11406         | SAV2643    | 114             |                 |                 |                 |
| ΦNE 02659         | SAV2644    | 105             |                 |                 |                 |
| ΦNE 04073         | SAV2645    | 118             |                 |                 |                 |
| ΦNE 00505         | SAV2646    | 55              | 95              |                 |                 |
| ΦNE 09723         | SAV2646    | 105             |                 |                 |                 |
| ΦNE 01876         | SAV2647    | 95              |                 |                 |                 |
| ΦNE 03626         | SAV2647    | 100             |                 |                 |                 |
| ΦNE 00083         | SAV2648    | 85              |                 |                 |                 |
| ΦNE 04051         | SAV2649    | 106             |                 |                 |                 |
| ΦNE 00878         | SAV2650    | 51              | 95              |                 |                 |
| ΦNE 02762         | SAV2651    | 119             |                 |                 |                 |
| ΦNE 04305         | SAV2652    | 32              | 100             |                 |                 |
| ΦNE 02681         | SAV2652    | 125             |                 |                 |                 |
| ΦNE 03558         | SAV2652    | 95              |                 |                 |                 |
| ΦNE 01583         | SAV2653    | 37              | 100             |                 |                 |
| ΦNE 04676         | SAV2654    | 100             |                 |                 | 98              |
| ΦNE 04712         | SAV2654    | 95              |                 |                 |                 |
| ΦNE 06330         | SAV2655    | 98              |                 |                 |                 |
| ΦNE 11230         | SAV2658    | 105             |                 |                 |                 |
| ΦNE 11724         | SAV2659    | 95              |                 |                 |                 |
| ΦNE 04057         | SAV2660    | 94              |                 |                 |                 |
| ΦNE 02386         | SAV2660    | 89              |                 |                 |                 |
| ΦNE 03156         | SAV2661    | 25              | 70              | 87              | 98              |
| ΦNE 04689         | SAV2662    | 100             |                 |                 |                 |
| ΦNE 02030         | SAV2663    | 100             |                 |                 |                 |
| ΦNE 12143         | SAV2664    | 42              | 90              |                 |                 |
| ΦNE 09269         | SAV2665    | 93              |                 |                 |                 |
| ΦNE 04722         | SAV2666    | 100             |                 |                 |                 |
| ΦNE 04780         | SAV2666    | 100             |                 |                 |                 |
| ΦNE 01598         | SAV2667    | 91              |                 |                 |                 |
| ΦNE 03146         | SAV2668    | 81              |                 |                 |                 |
| ΦNE 05081         | SAV2669    | 65              | 90              |                 |                 |
| ΦNE 04872         | SAV2671    | 90              |                 |                 |                 |
| ΦNE 04758         | SAV2672    | 100             |                 |                 |                 |
| ΦNE 03963         | SAV2673    | 65              | 90              |                 |                 |
| ΦNE 03892         | SAV2674    | 95              |                 |                 |                 |
| ΦNE 09374         | SAV2674    | 82              |                 |                 |                 |
| ΦNE 02790         | SAV2675    | 125             |                 |                 |                 |
| ΦNE 00062         | SAV2676    | 56              |                 |                 |                 |
| ΦNE 02701         | SAV2676    | 125             |                 |                 |                 |
| ΦNE 00731         | SAV2677    | 70              |                 |                 |                 |
| ΦNE 00416         | SAV2678    | 80              |                 |                 |                 |
| ΦNE 02009         | SAV2678    | 89              |                 |                 |                 |

| <b>Mutant no.</b> | <b>ORF</b> | <b>Screen 1</b> | <b>Screen 2</b> | <b>Screen 3</b> | <b>Screen 4</b> |
|-------------------|------------|-----------------|-----------------|-----------------|-----------------|
| ΦNE 02348         | SAV2679    | 100             |                 |                 |                 |
| ΦNE 00619         | SAV2680    | 90              |                 |                 |                 |
| ΦNE 01573         | SAV2681    | 110             |                 |                 |                 |
| ΦNE 12301         | SAV2683    | 67              | 79              |                 |                 |
| ΦNE 00726         | SAV2684    | 60              | 100             |                 |                 |
| ΦNE 01613         | SAV2685    | 84              |                 |                 |                 |
| ΦNE 00734         | SAV2686    | 60              | 95              |                 |                 |
| ΦNE 02732         | SAV2688    | 119             |                 |                 |                 |
| ΦNE 05335         | SAV2689    | 95              |                 |                 |                 |
| ΦNE 00709         | SAV2689    | 85              |                 |                 |                 |
| ΦNE 03122         | SAV2690    | 122             |                 |                 |                 |
| ΦNE 04754         | SAV2691    | 100             |                 |                 |                 |
| ΦNE 02837         | SAV2694    | 119             |                 |                 |                 |
| ΦNE 04759         | SAV2696    | 95              |                 |                 |                 |
| ΦNE 00295         | SAV2697    | 95              |                 |                 |                 |
| ΦNE 03556         | SAV2698    | 84              |                 |                 |                 |
| ΦNE 09337         | SAV2699    | 50              | 93              |                 |                 |
| ΦNE 02821         | SAV2700    | 125             |                 |                 |                 |
| ΦNE 09820         | SAV2700    | 100             | 100             |                 |                 |
| ΦNE 03823         | SAV2701    | 85              |                 |                 |                 |
| ΦNE 03436         | SAV2705    | 84              |                 |                 |                 |
| ΦNE 03664         | SAV2706    | 47              | 80              | 97              |                 |
| ΦNE 02441         | SAV2707    | 105             |                 |                 |                 |
| ΦNE 09932         | SAV2707    | 105             |                 |                 |                 |
| ΦNE 13476         | SAV2710    | 98              |                 |                 |                 |
| ΦNE 02246         | SAV2711    | 100             |                 |                 |                 |
| ΦNE 03570         | SAV2712    | 105             |                 |                 |                 |
| ΦNE 02773         | MW0055     | 113             |                 |                 |                 |
| ΦNE 02293         | MW0063     | 105             |                 |                 |                 |
| ΦNE 02272         | MW0064     | 105             |                 |                 |                 |
| ΦNE 05443         | MW0073     | 105             |                 |                 |                 |
| ΦNE 04871         | MW0098     | 85              | 95              |                 |                 |
| ΦNE 03653         | MW0120     | 65              |                 |                 |                 |
| ΦNE 02763         | MW0387     | 119             |                 |                 |                 |
| ΦNE 03693         | MW0398     | 41              | 100             |                 |                 |
| ΦNE 04808         | MW0554     | 100             |                 |                 |                 |
| ΦNE 02045         | MW0555     | 105             |                 |                 |                 |
| ΦNE 04799         | MW0558     | 100             |                 |                 |                 |
| ΦNE 04898         | MW0559     | 80              | 75              | 51              |                 |
| ΦNE 03457         | MW0562     | 100             |                 |                 |                 |
| ΦNE 03435         | MW0764     | 74              |                 |                 |                 |
| ΦNE 03828         | MW0765     | 85              |                 |                 |                 |
| ΦNE 05133         | MW0918     | 100             |                 |                 |                 |
| ΦNE 02413         | MW1201     | 105             |                 |                 |                 |
| ΦNE 10206         | MW1380     | 105             |                 |                 |                 |



| Mutant no. | ORF    | Screen 1 | Screen 2 | Screen 3 | Screen 4 |
|------------|--------|----------|----------|----------|----------|
| ΦNE 05098  | MW1442 | 100      |          |          |          |
| ΦNE 03507  | MW1742 | 95       |          |          |          |
| ΦNE 00599  | MW1743 | 105      |          |          |          |
| ΦNE 02003  | MW1749 | 105      |          |          |          |
| ΦNE 02041  | MW1760 | 105      |          |          |          |
| ΦNE 03278  | MW1761 | 79       |          |          |          |
| ΦNE 03627  | MW1762 | 47       | 75       | 97       |          |
| ΦNE 05631  | MW1771 | 105      |          |          |          |
| ΦNE 03866  | MW1947 | 95       |          |          |          |
| ΦNE 02690  | MW2125 | 125      |          |          |          |
| ΦNE 02436  | MW2197 | 105      |          |          |          |
| ΦNE 03736  | MW2377 | 59       | 95       |          |          |
| ΦNE 03748  | MW2534 | 71       |          |          |          |
| ΦNE 00038  | SA0877 | 118      |          |          |          |
| ΦNE 00473  | SA1787 | 85       |          |          |          |
| ΦNE 01711  | SA1802 | 16       | 95       |          |          |
| ΦNE 03466  | SA1806 | 105      |          |          |          |
| ΦNE 05547  | SAS067 | 100      |          |          |          |
| ΦNE 02052  | SA2074 | 105      |          |          |          |

*S. aureus* Newman mutants with a *bursa aurealis* insertion in 1,736 ORFs were screened on agar plates for the ability to kill between 30 and 50 worms. Both live and dead worms were enumerated under a dissecting microscope after 48-h incubation at 25°C on agar plates (Screen 1). Statistical significance was examined by  $\chi^2$  analysis, and mutants with a *P* value <0.1 were submitted to a second and third screening procedure with the same parameters (Screens 2 and 3). After three screening assays, 174 insertion mutants displayed reduced virulence and were analyzed further (*P* < 0.05). To determine whether unrelated mutations caused the observed reduced virulence phenotypes, each strain was lysed with phage  $\phi$  85, and transposon insertions were transduced into *S. aureus* wild-type strain Newman. The transduced *bursa aurealis* insertion sites were again mapped by inverse PCR and DNA sequencing. The transduced variants were then screened for defects in virulence by using agar plate infections of either adult worms or L4 larvae. Seventy-one of the original 174 mutants displayed reduced virulence in both assays (*P* < 0.05) (Screen 4), encompassing 41 genes with assigned function and 30 hypothetical ORFs.