

| Gene no.                          | EC or KEGG number                                | gene name              | enzyme  | RAAC1 (SR1)                    | RAAC2 (WWE3)                       | RAAC3 (TM7)                    | RAAC4 (OD1)                       |
|-----------------------------------|--|------------------------|---|--------------------------------|------------------------------------|--------------------------------|-----------------------------------|
| <b>Pyrimidine synth (C, U, T)</b> |  |                        |   |                                |                                    |                                |                                   |
| 1                                 | 6.3.4.16/6.3.5.5                                 | --                     | Carbamoyl phosphate synthetase  |                                |                                    |                                |                                   |
| 2                                 | 2.1.3.2  | pyrB                   | Aspartate carbamoyltransferase  |                                |                                    |                                |                                   |
| 3                                 | 3.5.2.3  | pyrC                   | Dihydroorotase  |                                |                                    |                                |                                   |
| 4                                 | 1.3.1.14/ 1.3.1.15/<br>1.3.5.2/ 1.3.98.1         | pyrD                   | Dihydroorotate dehydrogenase  | RAAC1_SR1_289                  |                                    | RAAC3_TM7_673                  | RAAC4_OD1_399                     |
| 5                                 | 2.4.2.10   | pyrE                   | Orotate phosphoribosyl transferase  | RAAC1_SR1_152                  |                                    |                                |                                   |
| 6                                 | 2.7.6.1  |                        | PRPP synthetase   |                                |                                    |                                |                                   |
| 7                                 | 4.1.1.23   | pyrF                   | Orotidine-5-P decarboxylase   | RAAC1_SR1_151                  |                                    |                                |                                   |
| 8                                 | 2.7.4.4/ 2.7.4.14/<br>2.7.4.22/ 3.6.1.6/ 3.6.1.5 | pyrH                   | Nucleotide monophosphate kinase   |                                |                                    |                                | RAAC4_OD1_472                     |
| 9                                 | 2.7.4.6/ 2.7.4.10/<br>3.6.1.5/ 3.6.1.39          |                        | Nucleoside diphosphate kinase   | RAAC1_SR1_657                  | RAAC2_WWE3_564                     | RAAC3_TM7_451                  | RAAC4_OD1_467                     |
| 10                                | 6.3.4.2  | pyrG                   | CTP synthetase  |                                |                                    | RAAC3_TM7_366                  | RAAC4_OD1_413                     |
| 11                                | 3.5.4.13   |                        | dCTP deaminase  |                                | RAAC2_WWE3_377<br>RAAC2_WWE3_378   | RAAC3_TM7_700                  |                                   |
| 12                                | 3.5.4.12   |                        | dCMP deaminase  | RAAC1_SR1_802<br>RAAC1_SR1_140 |                                    |                                | RAAC4_OD1_394                     |
| 13                                | 2.7.4.9  |                        | dTMP kinase/ thymidylate kinase   |                                | RAAC2_WWE3_282                     | RAAC3_TM7_699                  | RAAC4_OD1_388                     |
| 14                                | 2.1.1.45/ 2.1.1.148                              |                        | Thymidylate synthase  | RAAC1_SR1_387                  |                                    | RAAC3_TM7_703                  | RAAC4_OD1_391                     |
| 15                                | 3.6.1.1  |                        | Pyrophosphatase   | RAAC1_SR1_114<br>(cytoplasmic) | RAAC2_WWE3_460<br>(membrane bound) | RAAC3_TM7_840<br>(cytoplasmic) | RAAC4_OD1_499<br>(membrane bound) |
| <b>Purine synth (A, G, I, X)</b>  |  |                        |   |                                |                                    |                                |                                   |
| 1                                 | 2.4.2.14   | purF                   | PRPP amidotransferase   | RAAC1_SR1_765                  | RAAC2_WWE3_688                     | RAAC3_TM7_325                  | RAAC4_OD1_443                     |
| 2                                 | 6.3.4.13   | purD                   | Phosphoribosylglycineamide synthetase   |                                |                                    |                                |                                   |
| 3                                 | 2.1.2.2  | purN/ purT             | Phosphoribosylglycineamide formyltransferase                                      |                                |                                    |                                |                                   |
| 4                                 | 6.3.5.3  | purL (IMG finds purS)  | Phosphoribosyl-formylglycineamide synthetase                                      |                                |                                    |                                |                                   |
| 5                                 | 6.3.3.1  | purM                   | Phosphoribosyl-aminoimidazole synthetase  |                                |                                    | RAAC3_TM7_922                  |                                   |
| 6                                 | 6.3.4.18   | purK                   | Phosphoribosylaminoimidazole carboxylase  |                                |                                    |                                |                                   |
| 7                                 | 5.4.99.18  | purE                   | 5-(carboxyamino)imidazole ribonucleotide mutase                                   |                                |                                    |                                |                                   |
| 8                                 | 6.3.2.6  | purC                   | Phosphoribosyl-aminoimidazole succinocarboxamide synthetase                       |                                |                                    |                                |                                   |
| 9                                 | 2.1.2.3/ 6.3.4.-                                 | purH or purP (archaea) | Phosphoribosylaminoimidazole carboxamide formyltransferase                        |                                |                                    |                                |                                   |
| 10                                | 3.5.4.10   | purO                   | IMP cyclohydrolase  |                                |                                    |                                |                                   |
| 11                                | 6.3.4.4  | purA                   | Adenylosuccinate synthetase   | RAAC1_SR1_409                  |                                    |                                |                                   |
| 12                                | 4.3.2.2  | purB                   | Adenylosuccinate lyase  |                                |                                    |                                |                                   |
| 13                                | 1.1.1.205  | guaB                   | IMP dehydrogenase   | RAAC1_SR1_761                  | RAAC2_WWE3_463                     |                                |                                   |
| 14                                | 6.3.5.2  | guaA                   | GMP synthetase  |                                |                                    |                                |                                   |
| 15                                | 2.4.2.8/2.4.2.22                                 | hprT, hpt              | Hypoxanthine-guanine phosphoribosyltransferase/xanthine phosphoribosyltransferase | RAAC1_SR1_149                  |                                    | RAAC3_TM7_402                  |                                   |