

Supplementary Figure 4

PF13_0338 [Pf92] Repeat 1

```
[P reichenowi      GDIVYGHREFKGG]
Dd2                GDIVYGHREFKGG-----
T9/96              GDIVYGHREFKGGIVYGHREFKGG-----
T9/102             GDIVYGHREFKGG-----
R033               GDIVYGHREFKGGIVYGHREFKGG-----
3D7                GDIVYGHREFKGG-----
K1                 GDIVYGHREFKGGIVYGHREFKGG-----
Palo Alto          GDIVYGHREFKGGIVYGHREFKGG-----
FCR3               GDIVYGHREFKGGIVYGHREFKGGIVYGHREFK
D10                GDIVYGHREFKGGIVYGHREFKGG-----
HB3                GDIVYGHREFKGG-----
Wellcome           GDIVYGHREFKGGIVYGHREFKGGIVYGHREFK
Fcc2               GDIVYGHREFKGG-----
7G8                GDIVYGHREFKGG-----
D6                 GDIVYGHREFKGG-----
*****
```

PF14_0201 [Pf113] Repeat block

```
[P reichenowi -NNNNN--]
Dd2                NNNNNNNN
T9/96              NNNNNN--
T9/102             NNNNNNNN
R033               NNNNNN--
3D7                NNNNNNNN
K1                 NNNNNNNN
Palo Alto          NNNNNNNN
FCR3               NNNNNNNN
D10                NNNNNNNN
HB3                NNNNNNNN
Wellcome           NNNNNNNN
Fcc2               NNNNNNNN
7G8                NNNNNNNN
D6                 NNNNNN--
*****
```

PFF0995c [MSP10] Repeat block 1

```
[P reichenowi KNDNK---DSIYNNNN--DNINK-----]
Dd2                KNDNKDNKDNIYNDNINN-----
T9/96              KNDNKDN----YNDNINNDNINN-----
T9/102             KNDNKDNKDNIYNDNINNDNINN-----
R033               KNDNKDNKDNIYNDNINNDNINN-----
3D7                KNDNKDNKDNIYNDNINNDNINNDNINN
K1                 KNDNKDNKDNIYNDNINNDNINN-----
Palo Alto          KNDNKDN----YNDNINNDNINN-----
FCR3               KNDNKDNKDNIYNDNINN-----
D10                KNDNKDN----YNDNINNDNINN-----
HB3                KNDNKDNKDNIYNDNINNDNINN-----
Wellcome           KNDNKDNKDNIYNDNINN-----
Fcc2               KNDNKDNKDNIYNDNINN-----
7G8                KNDNKDNKDNIYNDNINN-----
D6                 KNDNKDNKDNIYNDNINNDNINN-----
*****          *****
```


PF10_0346 [MSP6]

[P reichenowi NDEEETETETENLETEEDNNEEIEENEEDDIDEEIVEENEEDDINDESVEEKEEKTEEK TENK]
Dd2 DEDEDEXXXTETENLETEEDNNEEIEENEEDDIDEESVEEKEEEEEKKEEEEKKEEKKEEK
T9/96 DEDEDEXXXTETENLETEEDNNEEIEENEEDDIDEESVEEKEEEEEKKEEEEKKEEKKEEK
T9/102 DEDEDEXXXTETENLETEEDNNEEIEENEEDDIDEESVEEKEEEEEKKEEEEKKEEKKEEK
R033 DEDEDEXXXTETENLETEEDNNEEIEENEEDDIDEESVEEKEEEEEKKEEEEKKEEKKEEK
3D7 DEDEDEXXXTETENLETEEDNNEEIEENEEDDIDEESVEEKEEEEEKKEEEEKKEEKKEEK
K1 DEDEDEXXXTETENLETEEDNNEEIEENEEDDIDEESVEEKEEEEEKKEEEEKKEEKKEEK
Palo Alto DEDEDEDEETETENLETEEDNNEEIEENEEDDIDEESVEEKEEEEEKKEEEEKKEEKKEEK
FCR3 DEDEDEXXXTETENLETEEDNNEEIEENEEDDIDEESVEEKEEEEEKKEEEEKKEEKKEEK
D10 DEDEDEXXXTETENLETEEDNNEEIEENEEDDIDEESVEEKEEEEEKKEEEEKKEEKKEEK
HB3 DEDEDEXXXTETENLETEEDNNEEIEENEEDDIDEESVEEKEEEEEKKEEEEKKEEKKEEK
Wellcome DEDEDEXXXTETENLETEEDNNEEIEENEEDDIDEESVEEKEEEEEKKEEEEKKEEKKEEK
Fcc2 DEDEDEXXXTETENLETEEDNNEEIEENEEDDIDEESVEEKEEEEEKKEEEEKKEEKKEEK
7G8 DEDEDEXXXTETENLETEEDNNEEIEENEEDDIDEESVEEKEEEEEKKEEEEKKEEKKEEK
D6 DEDEDEXXXTETENLETEEDNNEEIEENEEDDIDEESVEEKEEEEEKKEEEEKKEEKKEEK

PF13_0193 [MRSP3]

[*P reichenowi* sequence stops short of repeat region]

Dd2	KQEDKQEDKREDK-----QE
T9/96	KQEDKQEDKREDK-----QE
T9/102	KQEDKQEDKREDK-----QE
R033	KQEDKQEDKREDK-----QE
3D7	KQEDKQEDKREDK-----QE
K1	KQEDKQEDKREDK-----QE
Palo Alto	KQEDKQEDKREDK-----QE
FCR3	KQEDKQEDKREDK-----QE
D10	KQEDKQEDKREDK-----QE
HB3	KQEDKQEDKREDK-----QE
Wellcome	KQEDKQEDKREDK-----QE
Fcc2	KQEDKQEDKREDK-----QE
7G8	KQEDKQEDKREDK-----QE
D6	KQEDKQEDKREDKQEDKQEDKREDKQE
	***** **

MAL13P1.173 [MRSP4]

[*P reichenowi* ELEKEKE--

Dd2	ELEKEKEKE
T9/96	ELEKEKEKE
T9/102	ELEKEKEKE
R033	ELEKEKEKE
3D7	ELEKEKEKE
K1	ELEKEKEKE
Palo Alto	ELEKEKEKE
FCR3	ELEKEKE--
D10	ELEKEKEKE
HB3	ELEKEKEKE
Wellcome	ELEKEKE--
Fcc2	ELEKEKEKE
7G8	ELEKEKEKE
D6	ELEKEKEKE

PF13_0191 [MRSP5] Repeat block 1

[*P reichenowi* DEEETDEDDDEDSDEDDEEQEE [LNVEPKER] EDEQEETDDEQ

Dd2	DEEETDEDDDEDSDEDDEEQEE [LNVEPKER] EDEQEETDDEQ
T9/96	DEEETDEDDDEDSDEDDEEQEE [LNVEPKER] EDEQEETDDEQ
T9/102	DEEETDEDDDEDSDEDDEEQEE [LNVEPKER] EDEQEETDDEQ
R033	DEEETDEDDDEDSDEDDEEQEE [LNVEPKER] EDEQEETDDEQ
3D7	DEEETDEDDDEDSDEDDEEQEE [LNVEPKER] EDEQEETDDEQ
K1	DEEETDEDDDEDSDEDDEEQEE [LNVEPKER] EDEQEETDDEQ
Palo Alto	DEEETDEDDDEDSDEDDEEQEE [LNVEPKER] EDEQEETDDEQ
FCR3	DEEETDEDDDEDSDEDDEEQEE [LNVEPKER] EDEQEETDDEQ
D10	DEEETDEDDDEDSDEDDEEQEE [LNVEPKER] EDEQEETDDEQ
HB3	DEEETDEDDDEDSDEDDEEQEE [LNVEPKER] EDEQEETDDEQ
Wellcome	DEEETDEDDDEDSDEDDEEQEE [LNVEPKER] EDEQEETDDEQ
Fcc2	DEEETDEDDDEDSDEDDEEQEE [LNVEPKER] EDEQEETDDEQ
7G8	DEEETDEDDDEDSDEDDEEQEE [LNVEPKER] EDEQEETDDEQ
D6	DEEETDEDDDEDSDEDDEEQEE [LNVEPKER] EDEQEETDDEQ
	*****[non-rep]*****

PF13_0191 [MRSP5] Repeat block 2

```

[P reichenowi -----KETDDEQKETDDEQKETDDEQKETDDEQKETDDEQKETDDEQKETDDEQ----- ]
Dd2          -----KETEDEQKETEDEQKETEDEQ-----KESDDEQ-----KETEDEQKETEDEQ-----
T9/96       -----KETEDEQKETEDEQKETEDEQKETEDEQ-----KESDDEQ-----KETEDEQ-----
T9/102      -----KETEDEQKETEDEQKETEDEQKETEDEQ-----KESDDEQ-----KETEDEQKETEDEQ-----
R033        EETDDEQKETEDEQKETEDEQKETEDEQKETEDEQKETEDEQKESDDEQ-----KETEDEQ-----
3D7         -----KETEDEQKETEDEQKETEDEQKETEDEQKETEDEQKESDDEQ-----KETEDEQ-----
K1          -----KETEDEQKETEDEQKETEDEQKETEDEQ-----KESDDEQ-----KETEDEQKETEDEQ-----
Palo Alto   EETDDEQKETEDEQKETEDEQKETEDEQ-----KESDDEQ-----KETEDEQKETEDEQ-----
FCR3        -----KETEDEQKETEDEQKETEDEQ-----KESDDEQ-----KETEDEQKETEDEQKETEDEQ
D10         -----KETEDEQKETEDEQKETEDEQ-----KESDDEQ-----KETEDEQKETEDEQ-----
HB3         -----KETEDEQKETEDEQ-----KESDDEQ-----KETEDEQ-----
Wellcome    -----KETEDEQKETEDEQKETEDEQ-----KESDDEQ-----KETEDEQKETEDEQKETEDEQ
Fcc2        -----KETEDEQKETEDEQKETEDEQKETEDEQKETEDEQKESDDEQ-----KETEDEQ-----
7G8         -----KETEDEQKETEDEQKETEDEQKETEDEQ-----KESDDEQ-----KETEDEQKETEDEQ-----
D6          -----KETEDEQKETEDEQKETEDEQ-----KESDDEQKESDDEQKETEDEQ-----
                *****                               *****                               *****

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PF13_0191 [MRSP5] Repeat block 3

```

[P reichenowi DNEEDEEE---ESEENEENNDNTNEENEDNDEN-----EEE ]
Dd2          DNEEDDEEDEDDEEENEENNDNETNEENEDNDEN-----EEE
T9/96       DNEEDDEEDEDDEEENEENNDNETNEENEDNDENEDNDENE
T9/102      DNEEDDEEDEDDEEENEENNDNETNEENEDNDEN-----EEE
R033        DNEEDDEE---DDEEENEENNDNETNEENEDNDEN-----EEE
3D7         DNEEDDEEDEDDEEENEENNDNETNEENEDNDENEDNDENE
K1          DNEEDDEEDEDDEEENEENNDNETNEENEDNDEN-----EEE
Palo Alto   DNEEDDEEDEDDEEENEENNDNETNEENEDNDEN-----EEE
FCR3        DNEEDDEE---DDEEENEENNDNETNEENEDNDEN-----EEE
D10         DNEEDDEEDEDDEEENEENNDNETNEENEDNDEN-----EEE
HB3         DNEEDDEEDEDDEEENEENNDNETNEENEDNDEN-----EEE
Wellcome    DNEEDDEE---DDEEENEENNDNETNEENEDNDEN-----EEE
Fcc2        DNEEDDEEDEDDEEENEENNDNETNEENEDNDEN-----EEE
7G8         DNEEDDEEDEDDEEENEENNDNETNEENEDNDEN-----EEE
D6          DNEEDDEEDEDDEEENEENNDNETNEENEDNDENEDNDENE
                *****                               *****                               ***

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Pf13_0192 (MRSP family member) Repeat Block 1

```
[P.reichenowi] GEDDD-----DEDEDDVDEDD-----VDEED
Dd2 GEDDDDFDEDDDDFDEDDDDFDEDDDDFDEDDDFDEDDDE-----DDVDEDD-----LDVED
T9/96 GEDDDDFDEDDDDF-----DEDEDEDEDEDEDDVDEDD-----LDVED
T9/102 GEDDDDFDEDDDDFDEDDDDF-----DEDDDEDEDDVDEDD-----LDVED
RO33 GEDDDDFDEDDDDF-----DEDEDEDEDEDEDDVDEDD-----VDVED
3D7 GEDDDDFDEDDDDF-----DEDEDEDEDEDEDDVDEDD-----LDVED
K1 GEDDDDFDEDDDDFDEDDDDF-----DEDDDEDEDDVDEDD-----LDVED
Palo Alto GEDDDDFDEDDDDF-----DEDEDDVDEDDVDEDDLDVED
FCR3 GEDDDDFDEDDDDFDEDDDDF-----DEDEDEDEDEDE--DDVDEDD-----LDVED
D10 GEDDDDFDEDDDDFDEDDDDF-----DEDEDEDEDEDE--DDVDEDD-----LDVED
HB3 GEDDDDFDEDDDDF-----DEDEDEDEDEDEDEDDVDEDD-----LDVED
Wellcome GEDDDDFDEDDDDFDEDDDDF-----DEDEDEDEDEDEDDVDEDD-----LDVED
FCC2 GEDDDDFDEDDDDF-----DEDEDEDEDEDE--DDVDEDD-----LDVED
7G8 GEDDDDFDEDDDDFDEDDDDF-----DEDEDE--DDVDEDD-----LDVED
D6 GEDDDDFDEDDDDFDEDDDDF-----DEDEDDVDEDDVDEDDVDEDD
***** ** **
```

Pf13_0192 - Repeat Block 2

```
[P.reichenowi] NINNE-----NNDKH-----
Dd2 NINND-----NNDNNENNDNNENNDNN-----
T9/96 NINNDNNDNNENNDNNENND-----NNDNNENNDNNENNDNN-----
T9/102 NINND-----NNDNNENNDNNENNDNN-----
RO33 NINNDNNENNDNNENNDNNENN-----DNNENNDNNENNDNNENNDNN-----
3D7 NINND-----NNDNNENNDNNENNDNN-----
K1 NINND-----NNDNNENNDNNENNDNNENNDNN
Palo Alto NINND-----NNDNNENNDNN-----
FCR3 NINND-----NNDNNENNDNNENNDNN-----
D10 NINND-----NNDNNENNDNNENNDNN-----
HB3 NINNDNNDNNENNDNNENNDNNENNDNNENNDNNENNDNNENNDNNENNDNN-----
Wellcome NINND-----NNDNNENNDNNENNDNN-----
FCC2 NINND-----NNDNNENNDNNENNDNN-----
7G8 NINND-----NNDNNENNDNNENNDNN-----
D6 NINNDNNE-----NNDNNENNDNNENNDNNENNDNN
**** *****
```

Pf13_0192 - Repeat Block 3

```
[P.reichenowi] NNNNKKKNNQKNNQKNNQKNNQKYNQKNNQKNN
Dd2 NNNNKKKK-----KKNSQKNNQKNNQKNNQKHN
T9/96 NNNNKKKK-----KKNSQKNNQKNNQKNNQKHN
T9/102 NNNNKKKK-----KKNSQKNNQKNNQKNNQKHN
R033 NNNNKKKK-----KKNSQKNNQKNNQKNNQKHN
3D7 NNNNKKKK-----KKNSQKNNQKNNQKNNQKHN
K1 NNNNKKKK-----KKNSQKNNQKNNQKNNQKHN
Palo Alto NNNNKKKK-----KKNSQKNNQKNNQKNNQKHN
FCR3 NNNNKKKK-----KKNSQKNNQKNNQKNNQKHN
D10 NNNNKKKK-----KKNSQKNNQKNNQKNNQKHN
HB3 NNNNKKKK-----KKNSQKNNQKNNQKNNQKHN
Wellcome NNNNKKKK-----KKNSQKNNQKNNQKNNQKHN
FCC2 NNNNKKKK-----KKNSQKNNQKNNQKNNQKHN
7G8 NNNNKKKK-----KKNSQKNNQKNNQKNNQKHN
D6 NNNNKKKK-----KKNSQKNNQKNNQKNNQKHN
*** ** * *****
```

PF10_0348 [MSP3/6-like]

```
[P reichenowi DTED-----]
Dd2          DTED---TDDTEDTED
T9/96        DTEDTEDTDDTEDTED
T9/102       ---DTEDTDDTEDTED
R033         ---DTEDTDDTEDTED
3D7          ---DTEDTDDTEDTED
K1           ---DTEDTDDTEDTED
Palo Alto    ---DTEDTDDTEDTED
FCR3         ---DTEDTDDTEDTED
D10          ---DTEDTDDTEDTED
HB3          ---DTEDTDDTEDTED
Wellcome     ---DTEDTDDTEDTED
Fcc2         ---DTEDTDDTEDTED
7G8          ---DTEDTDDTEDTED
D6           ---DTEDTDDTEDTED
              *****
```

PF10_0352 [MSP3/6-like]

```
[P reichenowi TDVTDETDETEETEETED]
Dd2          TEDTDETDETDDETEETED
T9/96        TEDTDETDETDDETEETED
T9/102       TEDTDETDETDDETEETED
R033         TEDTDETDETDDETEETED
3D7          TEDTDETDETDDETEETED
K1           TEDTDETDETDDETEETED
Palo Alto    TEDTDETDETDDETEETED
FCR3         TEDTDETDETDDETEETED
D10          TEDTDETDETDDETEETED
HB3          TEDTDETDETDDETEETED
Wellcome     TEDTDETDETDDETEETED
Fcc2         TEDTDETDETDDETEETED
7G8          TEDTDETDETDDETEETED
D6           TEDTDETDETDDETEETED
              *****
```

PFL1385c [MSP9] Repeat block 1

```
[P reichenowi SANNSLENN----]
Dd2          SANNSANN----
T9/96        SANNSANN----
T9/102       SANNSANN----
R033         SANNSANN----
3D7          SANNSANN----
K1           SANNSANN----
Palo Alto    SANNSANN----
FCR3         SANNSANN----
D10          SANNSANN----
HB3          SANNSANN----
Wellcome     SANNSANN----
Fcc2         SANNSANN----
7G8          SANNSANN----
D6           SANNSANN----
              *****
```


PFL1385c [MSP9] Repeat block 2 (continued)

[*P reichenowi* DEEEVNDEEEVNDEEDVNDEEDVNDEEDVNDEEDLNDEED]
Dd2 DEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEED
T9/96 DEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEED
T9/102 DEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEED
R033 DEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEED
3D7 DEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEED
K1 DEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEED
Palo Alto DEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEED
FCR3 DEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEED
D10 DEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEED
HB3 DEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEED
Wellcome DEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEED
Fcc2 DEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEED
7G8 DEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEED
D6 DEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEEDTNDEED

PFL1385c [MSP9] Repeat block 3

[*P reichenowi* KEEKE no further sequence obtained]

Dd2	KEEEEKEKEKE-KEKEEKE--KEEKEKEEKE-----KE--KEEKKEEKKEKEEQEEEEEE-
T9/96	KEEEEKEKEKE-KEKEEKE--KEEKEKEEKE----KEKEEKEKE-----KEEKKEEKKEKEEQEEEEEE-
T9/102	KEEEEKEKEKE-KEKEEKE--KEEKEKEEKE--KEEKEKEEKEKE--KEEKKEEKKEKEEQEEEEEEG
R033	KEEEEKEKEKE-KEKEEKE--KEEKEKEEKE--KEE-----KEKE-----KEEKKEKEEQEEEEEE
3D7	KEEEEKEKEKEKEKEKEKEKEKEKEKEE--KEEKEKEE-----KEEKKEKEEQEEEEEE
K1	KEEEEKEKEKE-KEKEEKEKEKEKEKEKEKEE-----KEEKKEKEEQEEEEEE
Palo Alto	KEEEEKEKEKE-KEKEEKE--KEEKEKEEKEKEKEE--KE-----KEEKKEEKKEKEEQEEEEEE-
FCR3	KEEEEKEKEKE-KEKEEKE--KEEKE----KEKEEKE--KEKE-----KEEKKEEKKEKEEQE
D10	KEEEEKEKEKE-KEKEEKE--KEEKE----KEKEEKEKEE-----KEKEEKEEKKEKEEQEEEEEE-
HB3	KEEEEKEKEKE-KEKEEKE--KEEKE-----KEEKEKEEKEKEKEEKEEKEEKEEKEEKEEER
Wellcome	KEEEEKEKEKE-KEKEEKE--KEEKE-----KEKEEKE-KEKE-----KEEKKEEKKEKEEQEEEEEE
Fcc2	KEEEEKEKEKE-KEKEEKE--KEEKE-----KEEKE-----KEKEEKEEKKEKEEQEEEEER
7G8	KEEEEKEKEKE-KEKEEKE--KEEKE-----KEEKE-----KE-----KEEE-EEEEEEKEEEEEEEEEEE
D6	KEEEEKEKEKE-KEKEEKE--KEEKE-----KEEKEKEE-----KEE--KEEKKEKEEQEEEEEE

MAL7P1.208 [RAMA] Repeat block 1

[*P reichenowi* NFLEINNLENEKKEKHEKEDYEYEDNDESFLTEEYEDNEDEKYNKDEDDYAESFIETDKYEDNEDEKYNKDEKYNKDEKYNKDEDDYAE
Dd2 SFLEINKLENDKKEKHEKEDYEYEDNDESFLTEEYEDNEDEKYNKDEDDYAESFIETDEYEDNED-----
T9/96 SFLEINKLENDKKEKHEKEDYEYEDNDESFLTEEYEDNEDEKYNKDEDDYAESFIETDEYEDNED-----
T9/102 SFLEINKLENDKKEKHEKEDYEYEDNDESFLTEEYEDNEDEKYNKDEDDYAESFIETDEYEDNED-----
R033 SFLEINKLENDKKEKHEKEDYEYEDNDESFLTEEYEDNEDEKYNKDEDDYAESFIETDEYEDNED-----
3D7 SFLEINKLENDKKEKHEKEDYEYEDNDESFLTEEYEDNEDEKYNKDEDDYAESFIETDEYEDNED-----
K1 SFLEINKLENDKKEKHEKEDYEYEDNDESFLTEEYEDNEDEKYNKDEDDYAESFIETDEYEDNED-----
Palo Alto SFLEINKLENDKKEKHEKEDYEYEDNDESFLTEEYEDNEDEKYNKDEDDYAESFIETDEYEDNED-----
FCR3 SFLEINKLENDKKEKHEKEDYEYEDNDESFLTEEYEDNEDEKYNKDEDDYAESFIETDEYEDNED-----
D10 SFLEINKLENDKKEKHEKEDYEYEDNDESFLTEEYEDNEDEKYNKDEDDYAESFIETDEYEDNED-----
HB3 SFLEINKLENDKKEKHEKEDYEYEDNDESFLTEEYEDNEDEKYNKDEDDYAESFIETDEYEDNED-----
Wellcome SFLEINKLENDKKEKHEKEDYEYEDNDESFLTEEYEDNEDEKYNKDEDDYAESFIETDEYEDNED-----
Fcc2 SFLEINKLENDKKEKHEKEDYEYEDNDESFLTEEYEDNEDEKYNKDEDDYAESFIETDEYEDNED-----
7G8 SFLEINKLENDKKEKHEKEDYEYEDNDESFLTEEYEDNEDEKYNKDEDDYAESFIETDEYEDNED-----
D6 SFLEINKLENDKKEKHEKEDYEYEDNDESFLTEEYEDNEDEKYNKDEDDYAESFIETDEYEDNED-----

MAL7P1.208 [RAMA] Repeat block 1 (continued)

[*P reichenowi* SFIETDEYEDNKDDKYNKDEKYNKDEDDYAESFIETDEYDDNE]
Dd2 -----DKYNKDEDDYSESFIETDEYDDNE
T9/96 -----DKYNKDEDDYSESFIETDEYDDNE
T9/102 -----DKYNKDEDDYSESFIETDEYDDNE
R033 -----DKYNKDEDDYSESFIETDEYDDNE
3D7 -----DKYNKDEDDYSESFIETDEYDDNE
K1 -----DKYNKDEDDYSESFIETDEYDDNE
Palo Alto -----DKYNKDEDDYSESFIETDEYDDNE
FCR3 -----DKYNKDEDDYSESFIETDEYDDNE
D10 -----DKYNKDEDDYSESFIETDEYDDNE
HB3 -----DKYNKDEDDYSESFIETDEYDDNE
Wellcome -----DKYNKDEDDYSESFIETDEYDDNE
Fcc2 -----DKYNKDEDDYSESFIETDEYDDNE
7G8 -----DKYNKDEDDYSESFIETDEYDDNE
D6 -----DKYNKDEDDYSESFIETDEYDDNE

MAL7P1.208 [RAMA] Repeat block 2

[*P reichenowi* EEMKDEEM-----KYDEMKDDQMNKYDEMKDEEIKDDEMKYDEMKDEEMKYDEMKDEEMKY
Dd2 EEMKDEEMKDEEMEDVEMKDEEMKDEEMKYDEMKNEEMKYDEM-----
T9/96 EEMKDEEMKDEEMKDVEEMKDEEMKDEEMKYDEMKNEEMKYDEM-----
T9/102 EEMKDEEMKDEEMEDVEMKDEEMKDEEMKYDEMKNEEMKYDEM-----
R033 EEMKDEEMKDEEMKDVEEMKDEEMKDEEMKYDEMKNEEMKYDEM-----
3D7 EEMKDEEMKDEEMKDVEEMKDEEMKDEEMKYDEMKNEEMKYDEM-----
K1 EEMKDEEMKDEEMKDVEEMKDEEMKDEEMKYDEMKNEEMKYDEM-----
Palo Alto EEMKDEEMKDEEMKDVEEMKDEEMKDEEMKYDEMKNEEMKYDEM-----
FCR3 EEMKDEEMKDEEMEDVEMKDEEMKDEEMKYDEMKNEEMKYDEM-----
D10 EEMKDEEMKDEEMEDVEMKDEEMKDEEMKYDEMKNEEMKYDEM-----
HB3 EEMKDEEMKDEEMKDVEEMKDEEMK-----DEEI-----KYDEMKNEEMKYDEM-----
Wellcome EEMKDEEMKDEEMEDVEMKDEEMKDEEMKYDEMKNEEMKYDEM-----
Fcc2 EEMKDEEMKDEEMEDVEMKDEEMKDEEMKYDEMKNEEMKYDEM-----
7G8 EEMKDEEMKDEEMKDVEEMKDEEMKDEEMKYDEMKNEEMKYDEM-----
D6 EEMKDEEMKDEEMKDVEEMKDEEMKDEEMKYDEMKNEEMKYDEMKDEEMKYDEM-----

MAL7P1.208 [RAMA] Repeat block 2

[*P reichenowi* DDMKDEEMKNDKDEEMKDE-----QMEY
Dd2 -----KDEVKDEEMKDE-----QMKY
T9/96 -----KDEVKDEEMKDE-----QMKY
T9/102 -----KDEVKDEEMKDE-----QMKY
R033 -----KDEVKDEEMKDEEMKDEEMKDEEMKDEQMKY
3D7 -----KDEVKDEEMKDE-----VMKDEEMKDEQMKY
K1 -----KDEVKDEEMKDE-----QMKY
Palo Alto -----KDEVKDEEMKDE-----QMKY
FCR3 -----KDEVKDEEMKDE-----QMKY
D10 -----KDEVKDEEMKDE-----QMKY
HB3 -----KDEVKDEEMKDE-----VMKDEEMKDEQMKY
Wellcome -----KDEVKDEEMKDE-----QMKY
Fcc2 -----KDEVKDEEMKDE-----QMKY
7G8 -----KDEVKDEEMKDEEMKDE-----QMKY
D6 -----KDEVKDEEMKDE-----QMKY

MAL7P1.208 [RAMA] Repeat block 3

```
[P reichenowi EEF-----KNEDKKKED]
Dd2      EEFKNEEFKNEEFKNEESKNEESKNEESKNEESKNEEFKNEESKNEEFKNEEFKNE-----D
T9/96    EEFKNEEFK-----NEESKNEESKNEESKNEESKNEEFKNEESKNEEFKNEEF---
T9/102   EEFKNEEFKNEEFKNEESKNEESKNEESKNEESKNEEFKNEESKNEEFKNEEFKNE-----D
R033     EEFK-----NEESKNEESKNEESK-----NEEFKNEESKNEEFKNEEFKNE-----D
3D7      EEFK-----NEESKNEESKNEESKNEESKNEEFKNEESKNEEFKNEEFKNE-----D
K1       EEFKNEEFKNEEFKNEESKNEESKNEESKNEESKNEEFKNEESKNEEFKNEEFKNE-----D
Palo Alto EEFK-----NEESKNEESKNEESKNEESKNEEFKNEESKNEEFKNEEFKNE-----D
FCR3     EEFKNEEFKNEEFKNEESKNEESKNEESKNEESKNEEFKNEESKNEEFKNEEFKNE-----D
D10      EEFKNEEFKNEEFKNEESKNEESKNEESKNEESKNEEFKNEESKNEEFKNEEFKNE-----D
HB3      EEFK-----NEESKNEESKNEESKNEESKNEEFKNEESKNEEFKNEEF-----
Wellcome EEFKNEEFKNEEFKNEESKNEESKNEESKNEESKNEEFKNEESKNEEFKNEEFKNE-----D
Fcc2     EEFKNEEFKNEEFKNEESKNEESKNEESKNEESKNEEFKNEESKNEEFKNEEFKNE-----D
7G8      EEFKNEEFKNEEFKNEESKNEESKNEESKNEESKNEEFKNEESKNEEFKNEEFKNE-----D
D6       EEFK-----NEESKNEESKNEESKNEESKNEEFKNEESKNEEFKNEEFKNE-----D
*****
```

MAL7P1.208 [RAMA] Repeat block 4

```
[P reichenowi KEEKEEKE---]
Dd2      KEEKEEKEEKE
T9/96    KEEKEEKEEKE
T9/102   KEEKEEKEEKE
R033     KEEKEEKEEKE
3D7      KEEKEEKEEKE
K1       KEEKEEKEEKE
Palo Alto KEEKEEKEEKE
FCR3     KEEKEEKEEKE
D10      KEEKEEKEEKE
HB3      KEEKEEKEEKE
Wellcome KEEKEEKEEKE
Fcc2     KEEKEEKEEKE
7G8      KEEKEEKEEKE
D6       KEEKEEKEEKE
*****
```

PF13_0348 [Rhop148] Repeat block 1

```
[P reichenowi NIDD-----DDNNN-----I
Dd2          NIDDDNNNNNIDD-----NNNNNNI
T9/96       NIDD-NNNNNIDDNNNNNIDD--NNNNNNI
T9/102      NIDDDNNNNNIDD-----NNNNNNNI
R033       NIDDDNNNNNIDD-----NNNNNNNI
3D7        NIDDD-----NNNNNNI
K1         NIDDDNNNNNIDD-----NNNNNNI
Palo Alto  NIDDDNNNNNIDDNNNNNIDD-NNNNNNI
FCR3       NIDDDNNNNNIDD-----NNNNNNI
D10       NIDDDNNNNNIDD-----NNNNNNI
HB3       NIDDDNNNNNIDD-----NNNNNNI
Wellcome   NIDDDNNNNNIDD-----NNNNNNI
Fcc2      NIDDDNNNNNIDD-----NNNNNNI
7G8       NIDDDNNNNNIDD-----NNNNNNI
D6        NIDDDNNNNNIDD-----NNNNNNI
          ****                               *****
```

PF13_0348 [Rhop148] Repeat block 2

[*P. reichenowi* NANTKMNTKMNTKMNTNANTIINTNTNTIINTNTNTIINTNTNTETN-----]
Dd2 NANTNVNTNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNT-----
T9/96 NANTNTNANTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNTN-----
T9/102 NANTNVNTNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNT-----
R033 NANTNTNANTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNT-----
3D7 NANTNTNANTNTNANVNTNVNTNVNTNVNTNVNTNTNTNVNTNTNTNVNTNTNTN-----
K1 NANTNTNANTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNT-----
Palo Alto NANTNTNANTNTNANVNTNVNTNVNTNTNTNANVNTNVNTNVNTNVNTNTNTNANINTNVNTNTNTN-----
FCR3 NANTNTNANTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNT-----
D10 NANTNTNANTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNT-----
HB3 NANTNTNANTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANINTNVNTNTNTN-----
Wellcome NANTNTNANTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNT-----
Fcc2 NANTNTNANTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNT-----
7G8 NANTNTNANTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANINTNVNTNTNTN-----
D6 NANTNTNANTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNTNANVNTNVNTNTNVNTNTNTN-----

PF13_0348 [Rhop148] Repeat block 3

[*P reichenowi* NNNKNDNNNNNXXNNNNN-----NNNN-YNNYNNI
Dd2 NNNNDNNNNNDNNNNND-----NNNNINNNNNKKKNNNNNNNNNN----YNNI
T9/96 NNNNDNNNNNDNNNNNDNNNNND-----NNNNINNNNNKKKNNNNNNNNNN----YNNI
T9/102 NNNNDNNNNNDNNNNND-----NNNNINNNNNKKKNNNNNNNNNN----YNNI
R033 NNNNDNNNNNDNNNNNDNNNNND-----NNNNINNNNNKKKNNNNNNNNNN----YNNI
3D7 NNNNDNNNNNDNNNNNDNNNNND-----NNNNINNNNNKKKNNNNNNNNNN----YNNI
K1 NNNNDNNNNNDNNNNND-----NNNNINNNNNKKKNNNNNNNNNN----YNNI
Palo Alto NNNNDNNNNNDNNNNNDNNNNND-----NNNNINNNNNKKKNNNNNNNNNN----YNNI
FCR3 NNNNDNNNNNDNNNNNDNNNNND-----NNNNINNNNNKKKNNNNNNNNNN----YNNI
D10 NNNNDNNNNNDNNNNNDNNNNND-----NNNNINNNNNKKKNNNNNNNNNN----YNNI
HB3 NNNNDNNNNNDNNNNNDNNNNNDNNNNNDNNNNINNNNNKKKNNNNNNNNNN----YNNI
Wellcome NNNNDNNNNNDNNNNNDNNNNND-----NNNNINNNNNKKKNNNNNNNNNN----YNNI
Fcc2 NNNNDNNNNNDNNNNND-----NNNNINNNNNKKKNNNNNNNNNN----YNNI
7G8 NNNNDNNNNNDNNNNNDNNNNND-----NNNNINNNNNKKKNNNNNNNNNN----YNNI
D6 NNNNDNNNNNDNNNNNDNNNNND-----NNNNINNNNNKKKNNNNNNNNNN----YNNI

PF13_0348 [Rhop148] Repeat block 4

[*P reichenowi* DSSDNNNNNNNNNNNRGSQEIHLLKCDILKNEEYVNSNEYKNKKFIDMSNKGANVCVNIQDNRNNNN
Dd2 DSSDNNNNNNNNNN-----DSSNNSSNNSSNNSS-----NNNSN
T9/96 DSSDNNNNNNNNNN-----DSSNNSSNNSS-----NNNSN
T9/102 DSSDNNNNNNNNNN-----DSSNNSSNNSSNNSS-----NNNSN
R033 DSSDNNNNNNNNNN-----DSSNNSSNNSS-----NNNSN
3D7 DSSDNNNNNNNNNN-----DSSNNSS-----NNNSN
K1 DSSDNNNNNNNNNNNNNNNDSSNNSSNNSS-----NNNSN
Palo Alto DSSDNNNNNNNNNN-----DSSNNSS-----NNNSN
FCR3 DSSDNNNNNNNNNN-----DSSNNSS-----NNNSN
D10 DSSDNNNNNNNNNN-----DSSNNSSNNSS-----NNNSN
HB3 DSSDNNNNNNNNNN-----DSSNNSSNNSS-----NNNSN
Wellcome DSSDNNNNNNNNNN-----DSSNNSS-----NNNSN
Fcc2 DSSDNNNNNNNN-----DSSNNSS-----NNNSN
7G8 DSSDNNNNNNNNNN-----DSSNNSS-----NNNSN
D6 DSSDNNNNNNNNNN-----DSSNNSSNNSS-----NNNSN

Pf13_0348 [Rhop148] Repeat block 5
 [*P reichenowi* NIDNDKNNDSNNNNSSNNNNNC]
 Dd2 NNDINNDINNNCSNNNNNNNNNC
 T9/96 NNDINNDINNNCSNNNNNNNN-C
 T9/102 NNDINNDINNNCSNNNNNNNNNC
 R033 NNDINNDINNNCSNNNNNNNNNC
 3D7 NNDINNDINNNCSNNNNNNNNNC
 K1 NNDINNDINNNCSNNNNNNNNNC
 Palo Alto NNDINNDINNNCSNNNNNNNNNC
 FCR3 NNDINNDINNNCSNNNNNNNN-C
 D10 NNDINNDINNNCSNNNNNNNN-C
 HB3 NNDINNDINNNCSNNNNNNNNNC
 Wellcome NNDINNDINNNCSNNNNNNNN-C
 Fcc2 NNDINNDINNNCSNNNNNNNN-C
 7G8 NNDINNDINNNCSNNNNNNNNNC
 D6 NNDINNDINNNCSNNNNNNNNNC
 ***** *

Pf14_0102 [RAP1] Repeat block 1
 [*P reichenowi* SKSSPSSTKSSSPS]
 Dd2 LKSSPSITKSSSPS
 T9/96 SKSSPSSTKSSSPS
 T9/102 LKSSPSITKSSSPS
 R033 LKSSPSSTKSSSPS
 3D7 LKSSPSSTKSSSPS
 K1 LKSSPSSTKSSSPS
 Palo Alto SKSSPSSTKSSSPS
 FCR3 LKSSPSSTKSSSPS
 D10 LKSSPSSTKSSSPS
 HB3 SKSSPSSTKSSSPS
 Wellcome LKSSPSSTKSSSPS
 Fcc2 LKSSPSSTKSSSPS
 7G8 SKSSPSSTKSSSPS
 D6 LKSSPSITKSSSPS
