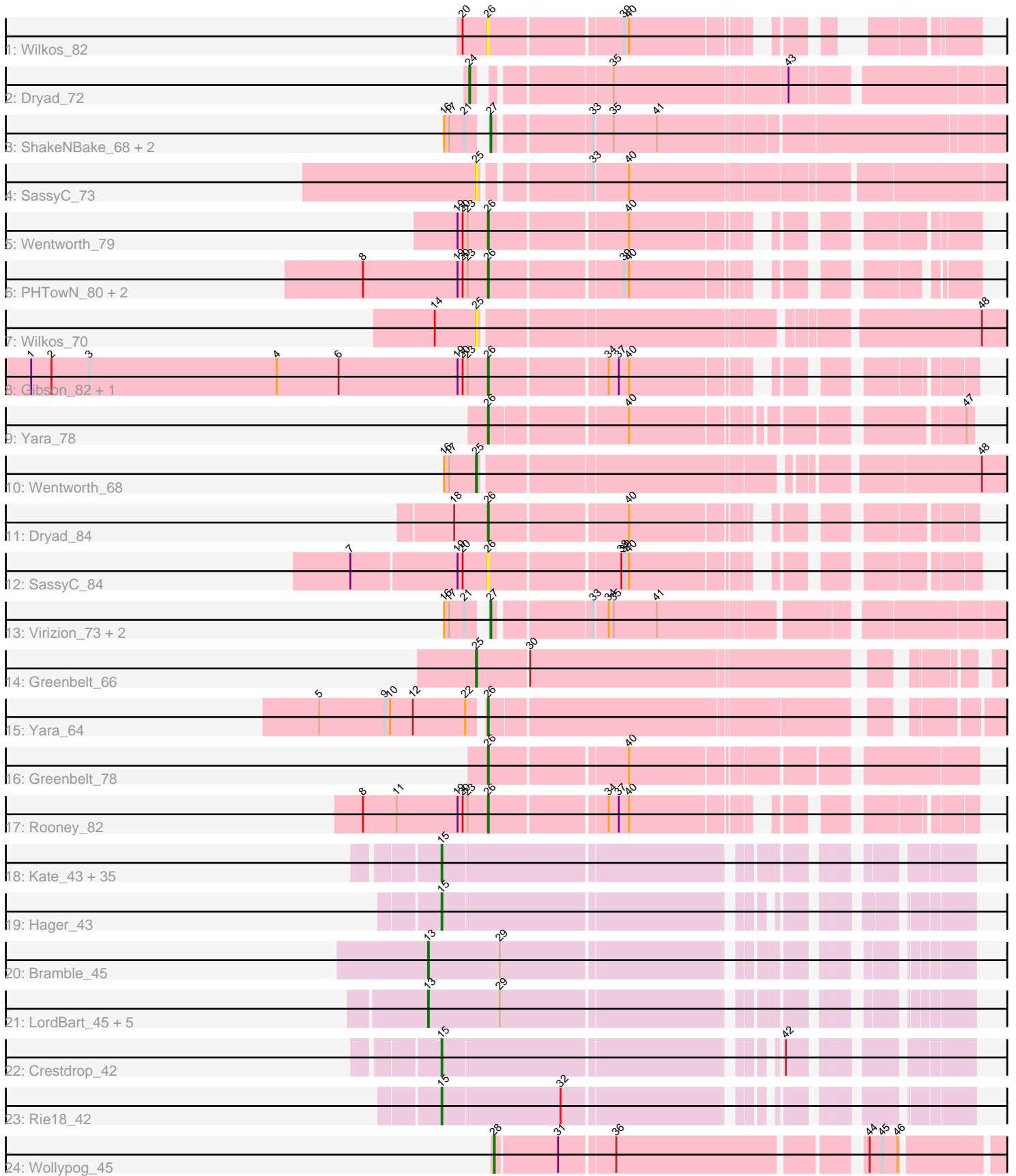


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Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. If this default region is judged to be packed too tightly with annotated starts, the track will be further scaled to only show that region of the ORF with annotated starts. This action will be indicated by adding "Zoomed" to the title. For starts, yellow indicates the location of called starts comprised solely of Glimmer/GeneMark auto-annotations, green indicates the location of called starts with at least 1 manual gene annotation.

## Pham 311551 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311551 has 71 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Wilkos\_82
- Track 2 : Dryad\_72
- Track 3 : ShakeNBake\_68, PHTowN\_68, Lizz\_68
- Track 4 : SassyC\_73
- Track 5 : Wentworth\_79
- Track 6 : PHTowN\_80, ShakeNBake\_80, Lizz\_80
- Track 7 : Wilkos\_70
- Track 8 : Gibson\_82, Virizion\_88
- Track 9 : Yara\_78
- Track 10 : Wentworth\_68
- Track 11 : Dryad\_84
- Track 12 : SassyC\_84
- Track 13 : Virizion\_73, Rooney\_68, Gibson\_68
- Track 14 : Greenbelt\_66
- Track 15 : Yara\_64
- Track 16 : Greenbelt\_78
- Track 17 : Rooney\_82
- Track 18 : Kate\_43, Karate\_41, OhDear\_42, Krampus\_42, Pharpay\_42, Aesir\_41, Annapurna\_42, Cybele\_42, CoolCookie\_42, DannyDe\_42, Potty\_42, Chivey\_42, JDawG\_41, Anakin\_42, Snakehole\_42, AnnaSerena\_42, FountainFog\_41, Poultruss\_41, MortySmith\_40, Haunter\_42, Dauntless\_41, Tiggy93\_42, Rachella\_42, NarutoRun\_42, JingleBells\_42, Neptune\_42, Tedro\_42, PhunaPhoke\_42, Tongui\_42, SilentWarrior\_42, OverHedge\_42, FreddieHg\_42, Hiddenleaf\_42, Artiphact\_42, Erudite\_41, Gilda\_42
- Track 19 : Hager\_43
- Track 20 : Bramble\_45
- Track 21 : LordBart\_45, TinyMiny\_45, RikSengupta\_45, Sparcetus\_45, Ajin\_45, Kors\_45
- Track 22 : Crestdrop\_42
- Track 23 : Rie18\_42
- Track 24 : Wollypog\_45

***Summary of Final Annotations (See graph section above for start numbers):***

The start number called the most often in the published annotations is 15, it was called in 35 of the 61 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aesir\_41, Anakin\_42, AnnaSerena\_42, Annapurna\_42, Artiphact\_42, Chivey\_42, CoolCookie\_42, Crestdrop\_42, Cybele\_42, DannyDe\_42, Dauntless\_41, Erudite\_41, FountainFog\_41, FreddieHg\_42, Gilda\_42, Hager\_43, Haunter\_42, Hiddenleaf\_42, JDawG\_41, JingleBells\_42, Karate\_41, Kate\_43, Krampus\_42, MortySmith\_40, NarutoRun\_42, Neptune\_42, OhDear\_42, OverHedge\_42, Pharpay\_42, PhunaPhoke\_42, Potty\_42, Poultruss\_41, Rachella\_42, Rie18\_42, SilentWarrior\_42, Snakehole\_42, Tedro\_42, Tiggy93\_42, Tongui\_42,

Genes that have the "Most Annotated" start but do not call it:

- 

Genes that do not have the "Most Annotated" start:

- Ajin\_45, Bramble\_45, Dryad\_72, Dryad\_84, Gibson\_68, Gibson\_82, Greenbelt\_66, Greenbelt\_78, Kors\_45, Lizz\_68, Lizz\_80, LordBart\_45, PHTowN\_68, PHTowN\_80, RikSengupta\_45, Rooney\_68, Rooney\_82, SassyC\_73, SassyC\_84, ShakeNBake\_68, ShakeNBake\_80, Sparcetus\_45, TinyMiny\_45, Virizion\_73, Virizion\_88, Wentworth\_68, Wentworth\_79, Wilkos\_70, Wilkos\_82, Wollypog\_45, Yara\_64, Yara\_78,

### Summary by start number:

Start 13:

- Found in 7 of 71 ( 9.9% ) of genes in pham
- Manual Annotations of this start: 7 of 61
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ajin\_45 (EF), Bramble\_45 (EF), Kors\_45 (EF), LordBart\_45 (EF), RikSengupta\_45 (EF), Sparcetus\_45 (EF), TinyMiny\_45 (EF),

Start 15:

- Found in 39 of 71 ( 54.9% ) of genes in pham
- Manual Annotations of this start: 35 of 61
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aesir\_41 (EF), Anakin\_42 (EF), AnnaSerena\_42 (EF), Annapurna\_42 (EF), Artiphact\_42 (EF), Chivey\_42 (EF), CoolCookie\_42 (EF), Crestdrop\_42 (EF), Cybele\_42 (EF), DannyDe\_42 (EF), Dauntless\_41 (EF), Erudite\_41 (EF), FountainFog\_41 (EF), FreddieHg\_42 (EF), Gilda\_42 (EF), Hager\_43 (EF), Haunter\_42 (EF), Hiddenleaf\_42 (EF), JDawG\_41 (EF), JingleBells\_42 (EF), Karate\_41 (EF), Kate\_43 (EF), Krampus\_42 (EF), MortySmith\_40 (EF), NarutoRun\_42 (EF), Neptune\_42 (EF), OhDear\_42 (EF), OverHedge\_42 (EF), Pharpay\_42 (EF), PhunaPhoke\_42 (EF), Potty\_42 (EF), Poultruss\_41 (EF), Rachella\_42 (EF), Rie18\_42 (EF), SilentWarrior\_42 (EF), Snakehole\_42 (EF), Tedro\_42 (EF), Tiggy93\_42 (EF), Tongui\_42 (EF),

Start 24:

- Found in 1 of 71 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 61
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dryad\_72 (BN),

#### Start 25:

- Found in 4 of 71 ( 5.6% ) of genes in pham
- Manual Annotations of this start: 2 of 61
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Greenbelt\_66 (BN), SassyC\_73 (BN), Wentworth\_68 (BN), Wilkos\_70 (BN),

#### Start 26:

- Found in 13 of 71 ( 18.3% ) of genes in pham
- Manual Annotations of this start: 10 of 61
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dryad\_84 (BN), Gibson\_82 (BN), Greenbelt\_78 (BN), Lizz\_80 (BN), PHTowN\_80 (BN), Rooney\_82 (BN), SassyC\_84 (BN), ShakeNBake\_80 (BN), Virizion\_88 (BN), Wentworth\_79 (BN), Wilkos\_82 (BN), Yara\_64 (BN), Yara\_78 (BN),

#### Start 27:

- Found in 6 of 71 ( 8.5% ) of genes in pham
- Manual Annotations of this start: 5 of 61
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gibson\_68 (BN), Lizz\_68 (BN), PHTowN\_68 (BN), Rooney\_68 (BN), ShakeNBake\_68 (BN), Virizion\_73 (BN),

#### Start 28:

- Found in 1 of 71 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 61
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Wollypog\_45 (singleton),

### **Summary by clusters:**

There are 3 clusters represented in this pham: BN, EF, singleton,

#### Info for manual annotations of cluster BN:

- Start number 24 was manually annotated 1 time for cluster BN.
- Start number 25 was manually annotated 2 times for cluster BN.
- Start number 26 was manually annotated 10 times for cluster BN.
- Start number 27 was manually annotated 5 times for cluster BN.

#### Info for manual annotations of cluster EF:

- Start number 13 was manually annotated 7 times for cluster EF.
- Start number 15 was manually annotated 35 times for cluster EF.

### **Gene Information:**

Gene: Aesir\_41 Start: 27893, Stop: 28423, Start Num: 15

Candidate Starts for Aesir\_41:

(Start: 15 @27893 has 35 MA's),

Gene: Ajin\_45 Start: 29095, Stop: 29643, Start Num: 13

Candidate Starts for Ajin\_45:

(Start: 13 @29095 has 7 MA's), (29, 29179),

Gene: Anakin\_42 Start: 28213, Stop: 28749, Start Num: 15

Candidate Starts for Anakin\_42:

(Start: 15 @28213 has 35 MA's),

Gene: AnnaSerena\_42 Start: 28248, Stop: 28784, Start Num: 15

Candidate Starts for AnnaSerena\_42:

(Start: 15 @28248 has 35 MA's),

Gene: Annapurna\_42 Start: 27522, Stop: 28052, Start Num: 15

Candidate Starts for Annapurna\_42:

(Start: 15 @27522 has 35 MA's),

Gene: Artiphact\_42 Start: 28237, Stop: 28773, Start Num: 15

Candidate Starts for Artiphact\_42:

(Start: 15 @28237 has 35 MA's),

Gene: Bramble\_45 Start: 29144, Stop: 29692, Start Num: 13

Candidate Starts for Bramble\_45:

(Start: 13 @29144 has 7 MA's), (29, 29228),

Gene: Chivey\_42 Start: 27471, Stop: 28001, Start Num: 15

Candidate Starts for Chivey\_42:

(Start: 15 @27471 has 35 MA's),

Gene: CoolCookie\_42 Start: 28243, Stop: 28779, Start Num: 15

Candidate Starts for CoolCookie\_42:

(Start: 15 @28243 has 35 MA's),

Gene: Crestdrop\_42 Start: 27505, Stop: 28035, Start Num: 15

Candidate Starts for Crestdrop\_42:

(Start: 15 @27505 has 35 MA's), (42, 27859),

Gene: Cybele\_42 Start: 28213, Stop: 28749, Start Num: 15

Candidate Starts for Cybele\_42:

(Start: 15 @28213 has 35 MA's),

Gene: DannyDe\_42 Start: 27477, Stop: 28007, Start Num: 15

Candidate Starts for DannyDe\_42:

(Start: 15 @27477 has 35 MA's),

Gene: Dauntless\_41 Start: 27799, Stop: 28329, Start Num: 15

Candidate Starts for Dauntless\_41:

(Start: 15 @27799 has 35 MA's),

Gene: Dryad\_72 Start: 48943, Stop: 48380, Start Num: 24

Candidate Starts for Dryad\_72:

(Start: 24 @48943 has 1 MA's), (35, 48808), (43, 48613),

Gene: Dryad\_84 Start: 55433, Stop: 54966, Start Num: 26

Candidate Starts for Dryad\_84:

(18, 55472), (Start: 26 @55433 has 10 MA's), (40, 55280),

Gene: Erudite\_41 Start: 27799, Stop: 28329, Start Num: 15  
Candidate Starts for Erudite\_41:  
(Start: 15 @27799 has 35 MA's),

Gene: FountainFog\_41 Start: 27523, Stop: 28044, Start Num: 15  
Candidate Starts for FountainFog\_41:  
(Start: 15 @27523 has 35 MA's),

Gene: FreddieHg\_42 Start: 27487, Stop: 28017, Start Num: 15  
Candidate Starts for FreddieHg\_42:  
(Start: 15 @27487 has 35 MA's),

Gene: Gibson\_82 Start: 55230, Stop: 54763, Start Num: 26  
Candidate Starts for Gibson\_82:  
(1, 55767), (2, 55743), (3, 55698), (4, 55476), (6, 55404), (19, 55266), (20, 55260), (23, 55254), (Start: 26 @55230 has 10 MA's), (34, 55101), (37, 55089), (40, 55077),

Gene: Gibson\_68 Start: 48192, Stop: 47644, Start Num: 27  
Candidate Starts for Gibson\_68:  
(16, 48231), (17, 48225), (21, 48207), (Start: 27 @48192 has 5 MA's), (33, 48087), (34, 48072), (35, 48066), (41, 48015),

Gene: Gilda\_42 Start: 28237, Stop: 28773, Start Num: 15  
Candidate Starts for Gilda\_42:  
(Start: 15 @28237 has 35 MA's),

Gene: Greenbelt\_66 Start: 44319, Stop: 43777, Start Num: 25  
Candidate Starts for Greenbelt\_66:  
(Start: 25 @44319 has 2 MA's), (30, 44262),

Gene: Greenbelt\_78 Start: 51064, Stop: 50546, Start Num: 26  
Candidate Starts for Greenbelt\_78:  
(Start: 26 @51064 has 10 MA's), (40, 50911),

Gene: Hager\_43 Start: 27723, Stop: 28247, Start Num: 15  
Candidate Starts for Hager\_43:  
(Start: 15 @27723 has 35 MA's),

Gene: Haunter\_42 Start: 27644, Stop: 28171, Start Num: 15  
Candidate Starts for Haunter\_42:  
(Start: 15 @27644 has 35 MA's),

Gene: Hiddenleaf\_42 Start: 27471, Stop: 28001, Start Num: 15  
Candidate Starts for Hiddenleaf\_42:  
(Start: 15 @27471 has 35 MA's),

Gene: JDawG\_41 Start: 27888, Stop: 28418, Start Num: 15  
Candidate Starts for JDawG\_41:  
(Start: 15 @27888 has 35 MA's),

Gene: JingleBells\_42 Start: 27592, Stop: 28122, Start Num: 15  
Candidate Starts for JingleBells\_42:

(Start: 15 @27592 has 35 MA's),

Gene: Karate\_41 Start: 28242, Stop: 28775, Start Num: 15

Candidate Starts for Karate\_41:

(Start: 15 @28242 has 35 MA's),

Gene: Kate\_43 Start: 28245, Stop: 28781, Start Num: 15

Candidate Starts for Kate\_43:

(Start: 15 @28245 has 35 MA's),

Gene: Kors\_45 Start: 29172, Stop: 29720, Start Num: 13

Candidate Starts for Kors\_45:

(Start: 13 @29172 has 7 MA's), (29, 29256),

Gene: Krampus\_42 Start: 28245, Stop: 28781, Start Num: 15

Candidate Starts for Krampus\_42:

(Start: 15 @28245 has 35 MA's),

Gene: Lizz\_68 Start: 48031, Stop: 47468, Start Num: 27

Candidate Starts for Lizz\_68:

(16, 48070), (17, 48064), (21, 48046), (Start: 27 @48031 has 5 MA's), (33, 47926), (35, 47905), (41, 47854),

Gene: Lizz\_80 Start: 54885, Stop: 54421, Start Num: 26

Candidate Starts for Lizz\_80:

(8, 55032), (19, 54921), (20, 54915), (23, 54909), (Start: 26 @54885 has 10 MA's), (39, 54738), (40, 54732),

Gene: LordBart\_45 Start: 29081, Stop: 29629, Start Num: 13

Candidate Starts for LordBart\_45:

(Start: 13 @29081 has 7 MA's), (29, 29165),

Gene: MortySmith\_40 Start: 27276, Stop: 27806, Start Num: 15

Candidate Starts for MortySmith\_40:

(Start: 15 @27276 has 35 MA's),

Gene: NarutoRun\_42 Start: 28213, Stop: 28749, Start Num: 15

Candidate Starts for NarutoRun\_42:

(Start: 15 @28213 has 35 MA's),

Gene: Neptune\_42 Start: 28213, Stop: 28749, Start Num: 15

Candidate Starts for Neptune\_42:

(Start: 15 @28213 has 35 MA's),

Gene: OhDear\_42 Start: 28211, Stop: 28747, Start Num: 15

Candidate Starts for OhDear\_42:

(Start: 15 @28211 has 35 MA's),

Gene: OverHedge\_42 Start: 28203, Stop: 28739, Start Num: 15

Candidate Starts for OverHedge\_42:

(Start: 15 @28203 has 35 MA's),

Gene: PHTowN\_68 Start: 48029, Stop: 47466, Start Num: 27

Candidate Starts for PHTown\_68:  
(16, 48068), (17, 48062), (21, 48044), (Start: 27 @48029 has 5 MA's), (33, 47924), (35, 47903), (41, 47852),

Gene: PHTown\_80 Start: 54883, Stop: 54419, Start Num: 26  
Candidate Starts for PHTown\_80:  
(8, 55030), (19, 54919), (20, 54913), (23, 54907), (Start: 26 @54883 has 10 MA's), (39, 54736), (40, 54730),

Gene: Pharpay\_42 Start: 28258, Stop: 28794, Start Num: 15  
Candidate Starts for Pharpay\_42:  
(Start: 15 @28258 has 35 MA's),

Gene: PhunaPhoke\_42 Start: 28231, Stop: 28767, Start Num: 15  
Candidate Starts for PhunaPhoke\_42:  
(Start: 15 @28231 has 35 MA's),

Gene: Potty\_42 Start: 28236, Stop: 28772, Start Num: 15  
Candidate Starts for Potty\_42:  
(Start: 15 @28236 has 35 MA's),

Gene: Poultruss\_41 Start: 28582, Stop: 29115, Start Num: 15  
Candidate Starts for Poultruss\_41:  
(Start: 15 @28582 has 35 MA's),

Gene: Rachella\_42 Start: 28239, Stop: 28775, Start Num: 15  
Candidate Starts for Rachella\_42:  
(Start: 15 @28239 has 35 MA's),

Gene: Rie18\_42 Start: 27794, Stop: 28321, Start Num: 15  
Candidate Starts for Rie18\_42:  
(Start: 15 @27794 has 35 MA's), (32, 27932),

Gene: RikSengupta\_45 Start: 29209, Stop: 29757, Start Num: 13  
Candidate Starts for RikSengupta\_45:  
(Start: 13 @29209 has 7 MA's), (29, 29293),

Gene: Rooney\_68 Start: 48168, Stop: 47620, Start Num: 27  
Candidate Starts for Rooney\_68:  
(16, 48207), (17, 48201), (21, 48183), (Start: 27 @48168 has 5 MA's), (33, 48063), (34, 48048), (35, 48042), (41, 47991),

Gene: Rooney\_82 Start: 55236, Stop: 54769, Start Num: 26  
Candidate Starts for Rooney\_82:  
(8, 55383), (11, 55344), (19, 55272), (20, 55266), (23, 55260), (Start: 26 @55236 has 10 MA's), (34, 55107), (37, 55095), (40, 55083),

Gene: SassyC\_73 Start: 49109, Stop: 48540, Start Num: 25  
Candidate Starts for SassyC\_73:  
(Start: 25 @49109 has 2 MA's), (33, 48995), (40, 48956),

Gene: SassyC\_84 Start: 55255, Stop: 54782, Start Num: 26  
Candidate Starts for SassyC\_84:

(7, 55411), (19, 55291), (20, 55285), (Start: 26 @55255 has 10 MA's), (38, 55111), (39, 55108), (40, 55102),

Gene: ShakeNBake\_68 Start: 48056, Stop: 47493, Start Num: 27

Candidate Starts for ShakeNBake\_68:

(16, 48095), (17, 48089), (21, 48071), (Start: 27 @48056 has 5 MA's), (33, 47951), (35, 47930), (41, 47879),

Gene: ShakeNBake\_80 Start: 54910, Stop: 54446, Start Num: 26

Candidate Starts for ShakeNBake\_80:

(8, 55057), (19, 54946), (20, 54940), (23, 54934), (Start: 26 @54910 has 10 MA's), (39, 54763), (40, 54757),

Gene: SilentWarrior\_42 Start: 27484, Stop: 28014, Start Num: 15

Candidate Starts for SilentWarrior\_42:

(Start: 15 @27484 has 35 MA's),

Gene: Snakehole\_42 Start: 27416, Stop: 27952, Start Num: 15

Candidate Starts for Snakehole\_42:

(Start: 15 @27416 has 35 MA's),

Gene: Sparcetus\_45 Start: 29088, Stop: 29636, Start Num: 13

Candidate Starts for Sparcetus\_45:

(Start: 13 @29088 has 7 MA's), (29, 29172),

Gene: Tedro\_42 Start: 27724, Stop: 28254, Start Num: 15

Candidate Starts for Tedro\_42:

(Start: 15 @27724 has 35 MA's),

Gene: Tiggy93\_42 Start: 28242, Stop: 28778, Start Num: 15

Candidate Starts for Tiggy93\_42:

(Start: 15 @28242 has 35 MA's),

Gene: TinyMiny\_45 Start: 29107, Stop: 29655, Start Num: 13

Candidate Starts for TinyMiny\_45:

(Start: 13 @29107 has 7 MA's), (29, 29191),

Gene: Tongui\_42 Start: 27839, Stop: 28375, Start Num: 15

Candidate Starts for Tongui\_42:

(Start: 15 @27839 has 35 MA's),

Gene: Virizion\_73 Start: 48388, Stop: 47840, Start Num: 27

Candidate Starts for Virizion\_73:

(16, 48427), (17, 48421), (21, 48403), (Start: 27 @48388 has 5 MA's), (33, 48283), (34, 48268), (35, 48262), (41, 48211),

Gene: Virizion\_88 Start: 55426, Stop: 54959, Start Num: 26

Candidate Starts for Virizion\_88:

(1, 55963), (2, 55939), (3, 55894), (4, 55672), (6, 55600), (19, 55462), (20, 55456), (23, 55450), (Start: 26 @55426 has 10 MA's), (34, 55297), (37, 55285), (40, 55273),

Gene: Wentworth\_79 Start: 54336, Stop: 53863, Start Num: 26

Candidate Starts for Wentworth\_79:

(19, 54372), (20, 54366), (23, 54360), (Start: 26 @54336 has 10 MA's), (40, 54183),

Gene: Wentworth\_68 Start: 48157, Stop: 47597, Start Num: 25

Candidate Starts for Wentworth\_68:

(16, 48193), (17, 48187), (Start: 25 @48157 has 2 MA's), (48, 47632),

Gene: Wilkos\_82 Start: 54813, Stop: 54361, Start Num: 26

Candidate Starts for Wilkos\_82:

(20, 54843), (Start: 26 @54813 has 10 MA's), (39, 54666), (40, 54660),

Gene: Wilkos\_70 Start: 48319, Stop: 47750, Start Num: 25

Candidate Starts for Wilkos\_70:

(14, 48367), (Start: 25 @48319 has 2 MA's), (48, 47785),

Gene: Wollypog\_45 Start: 32939, Stop: 33472, Start Num: 28

Candidate Starts for Wollypog\_45:

(Start: 28 @32939 has 1 MA's), (31, 33008), (36, 33068), (44, 33332), (45, 33347), (46, 33365),

Gene: Yara\_78 Start: 53975, Stop: 53490, Start Num: 26

Candidate Starts for Yara\_78:

(Start: 26 @53975 has 10 MA's), (40, 53825), (47, 53498),

Gene: Yara\_64 Start: 46991, Stop: 46455, Start Num: 26

Candidate Starts for Yara\_64:

(5, 47177), (9, 47099), (10, 47093), (12, 47066), (22, 47006), (Start: 26 @46991 has 10 MA's),