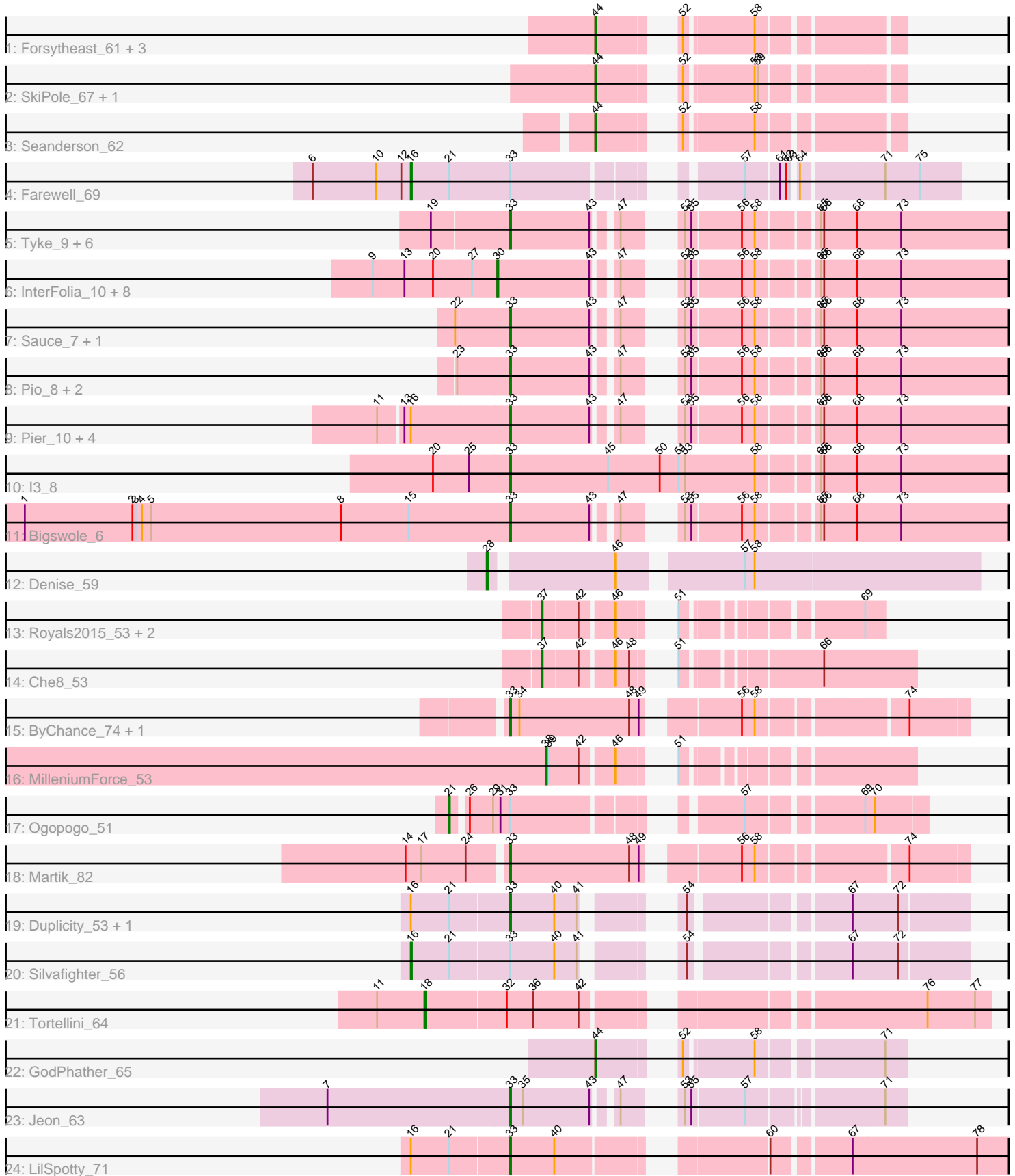


# Pham 194069



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 194069 Report

This analysis was run 11/02/24 on database version 579.

Pham number 194069 has 53 members, 4 are drafts.

Phages represented in each track:

- Track 1 : Forsytheast\_61, Moose\_61, Bruns\_61, SwissCheese\_63
- Track 2 : SkiPole\_67, Pepe\_58
- Track 3 : Seanderson\_62
- Track 4 : Farewell\_69
- Track 5 : Tyke\_9, Mikro\_7, Bxz1\_7, Kamryn\_7, DTDevon\_9, NoodleTree\_7, Drazdys\_9
- Track 6 : InterFolia\_10, JigglyPuff\_8, JayJay\_8, LordLeafolot\_10, FrayBell\_10, Specks\_10, Tainan\_10, LinStu\_9, Sebata\_9
- Track 7 : Sauce\_7, Nidhogg\_7
- Track 8 : Pio\_8, Spud\_8, MoMoMixon\_7
- Track 9 : Pier\_10, StephanieG\_9, Astraea\_9, Dandelion\_10, NuevoMundo\_9
- Track 10 : l3\_8
- Track 11 : Bigswole\_6
- Track 12 : Denise\_59
- Track 13 : Royals2015\_53, ArcusAngelus\_54, Chevrolet\_57
- Track 14 : Che8\_53
- Track 15 : ByChance\_74, ShowerHandel\_83
- Track 16 : MilleniumForce\_53
- Track 17 : Ogopogo\_51
- Track 18 : Martik\_82
- Track 19 : Duplicity\_53, Melville\_59
- Track 20 : Silvafighter\_56
- Track 21 : Tortellini\_64
- Track 22 : GodPhather\_65
- Track 23 : Jeon\_63
- Track 24 : LilSpotty\_71

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

The start number called the most often in the published annotations is 33, it was called in 26 of the 49 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Astraea\_9, Bigswole\_6, Bxz1\_7, ByChance\_74, DTDevon\_9, Dandelion\_10, Drazdys\_9, Duplicity\_53, I3\_8, Jeon\_63, Kamryn\_7, LilSpotty\_71, Martik\_82, Melville\_59, Mikro\_7, MoMoMixon\_7, Nidhogg\_7, NoodleTree\_7, NuevoMundo\_9, Pier\_10, Pio\_8, Sauce\_7, ShowerHandel\_83, Spud\_8, StephanieG\_9, Tyke\_9,

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

- Farewell\_69, Ogopogo\_51, Silvafighter\_56,

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

- ArcusAngelus\_54, Bruns\_61, Che8\_53, Chevrolet\_57, Denise\_59, Forsytheast\_61, FrayBell\_10, GodPhather\_65, InterFolia\_10, JayJay\_8, JigglyPuff\_8, LinStu\_9, LordLeafolot\_10, MilleniumForce\_53, Moose\_61, Pepe\_58, Royals2015\_53, Seanderson\_62, Sebata\_9, SkiPole\_67, Specks\_10, SwissCheese\_63, Tainan\_10, Tortellini\_64,

### Summary by start number:

Start 16:

- Found in 10 of 53 ( 18.9% ) of genes in pham
- Manual Annotations of this start: 2 of 49
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Farewell\_69 (AF), Silvafighter\_56 (N),

Start 18:

- Found in 1 of 53 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Tortellini\_64 (P2),

Start 21:

- Found in 6 of 53 ( 11.3% ) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Ogopogo\_51 (F1),

Start 28:

- Found in 1 of 53 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Denise\_59 (CZ5),

Start 30:

- Found in 9 of 53 ( 17.0% ) of genes in pham
- Manual Annotations of this start: 5 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: FrayBell\_10 (C1), InterFolia\_10 (C1), JayJay\_8 (C1), JigglyPuff\_8 (C1), LinStu\_9 (C1), LordLeafolot\_10 (C1), Sebata\_9 (C1), Specks\_10 (C1), Tainan\_10 (C1),

Start 33:

- Found in 29 of 53 ( 54.7% ) of genes in pham
- Manual Annotations of this start: 26 of 49
- Called 89.7% of time when present

- Phage (with cluster) where this start called: Astraea\_9 (C1), Bigswole\_6 (C1), Bxz1\_7 (C1), ByChance\_74 (F1), DTDevon\_9 (C1), Dandelion\_10 (C1), Drazdys\_9 (C1), Duplicity\_53 (N), I3\_8 (C1), Jeon\_63 (W), Kamryn\_7 (C1), LilSpotty\_71 (singleton), Martik\_82 (F1), Melville\_59 (N), Mikro\_7 (C1), MoMoMixon\_7 (C1), Nidhogg\_7 (C1), NoodleTree\_7 (C1), NuevoMundo\_9 (C1), Pier\_10 (C1), Pio\_8 (C1), Sauce\_7 (C1), ShowerHandel\_83 (F1), Spud\_8 (C1), StephanieG\_9 (C1), Tyke\_9 (C1),

#### Start 37:

- Found in 4 of 53 ( 7.5% ) of genes in pham
- Manual Annotations of this start: 4 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ArcusAngelus\_54 (F1), Che8\_53 (F1), Chevrolet\_57 (F1), Royals2015\_53 (F1),

#### Start 38:

- Found in 1 of 53 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 1 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MilleniumForce\_53 (F1),

#### Start 44:

- Found in 8 of 53 ( 15.1% ) of genes in pham
- Manual Annotations of this start: 8 of 49
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bruns\_61 (A1), Forsytheast\_61 (A1), GodPhather\_65 (W), Moose\_61 (A1), Pepe\_58 (A1), Seanderson\_62 (A1), SkiPole\_67 (A1), SwissCheese\_63 (A1),

### **Summary by clusters:**

There are 9 clusters represented in this pham: P2, F1, singleton, AF, CZ5, A1, W, C1, N,

#### Info for manual annotations of cluster A1:

- Start number 44 was manually annotated 7 times for cluster A1.

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

- Start number 16 was manually annotated 1 time for cluster AF.

#### Info for manual annotations of cluster C1:

- Start number 30 was manually annotated 5 times for cluster C1.
- Start number 33 was manually annotated 19 times for cluster C1.

#### Info for manual annotations of cluster CZ5:

- Start number 28 was manually annotated 1 time for cluster CZ5.

#### Info for manual annotations of cluster F1:

- Start number 21 was manually annotated 1 time for cluster F1.
- Start number 33 was manually annotated 3 times for cluster F1.
- Start number 37 was manually annotated 4 times for cluster F1.
- Start number 38 was manually annotated 1 time for cluster F1.

Info for manual annotations of cluster N:

- Start number 16 was manually annotated 1 time for cluster N.
- Start number 33 was manually annotated 2 times for cluster N.

Info for manual annotations of cluster P2:

- Start number 18 was manually annotated 1 time for cluster P2.

Info for manual annotations of cluster W:

- Start number 33 was manually annotated 1 time for cluster W.
- Start number 44 was manually annotated 1 time for cluster W.

### **Gene Information:**

Gene: ArcusAngelus\_54 Start: 38017, Stop: 38256, Start Num: 37

Candidate Starts for ArcusAngelus\_54:

(Start: 37 @38017 has 4 MA's), (42, 38050), (46, 38077), (51, 38101), (69, 38239),

Gene: Astraea\_9 Start: 2499, Stop: 2930, Start Num: 33

Candidate Starts for Astraea\_9:

(11, 2394), (13, 2415), (Start: 16 @2421 has 2 MA's), (Start: 33 @2499 has 26 MA's), (43, 2574), (47, 2589), (53, 2616), (55, 2622), (56, 2667), (58, 2679), (65, 2730), (66, 2733), (68, 2763), (73, 2805),

Gene: Bigswole\_6 Start: 2050, Stop: 2481, Start Num: 33

Candidate Starts for Bigswole\_6:

(1, 1606), (2, 1708), (3, 1711), (4, 1717), (5, 1726), (8, 1906), (15, 1969), (Start: 33 @2050 has 26 MA's), (43, 2125), (47, 2140), (53, 2167), (55, 2173), (56, 2218), (58, 2230), (65, 2281), (66, 2284), (68, 2314), (73, 2356),

Gene: Bruns\_61 Start: 39972, Stop: 39745, Start Num: 44

Candidate Starts for Bruns\_61:

(Start: 44 @39972 has 8 MA's), (52, 39924), (58, 39864),

Gene: Bxz1\_7 Start: 2148, Stop: 2579, Start Num: 33

Candidate Starts for Bxz1\_7:

(19, 2091), (Start: 33 @2148 has 26 MA's), (43, 2223), (47, 2238), (53, 2265), (55, 2271), (56, 2316), (58, 2328), (65, 2379), (66, 2382), (68, 2412), (73, 2454),

Gene: ByChance\_74 Start: 45038, Stop: 45421, Start Num: 33

Candidate Starts for ByChance\_74:

(Start: 33 @45038 has 26 MA's), (34, 45047), (48, 45149), (49, 45158), (56, 45230), (58, 45242), (74, 45368),

Gene: Che8\_53 Start: 37842, Stop: 38123, Start Num: 37

Candidate Starts for Che8\_53:

(Start: 37 @37842 has 4 MA's), (42, 37875), (46, 37902), (48, 37914), (51, 37926), (66, 38040),

Gene: Chevrolet\_57 Start: 38018, Stop: 38257, Start Num: 37

Candidate Starts for Chevrolet\_57:

(Start: 37 @38018 has 4 MA's), (42, 38051), (46, 38078), (51, 38102), (69, 38240),

Gene: DTDevon\_9 Start: 2817, Stop: 3251, Start Num: 33

Candidate Starts for DTDevon\_9:

(19, 2760), (Start: 33 @2817 has 26 MA's), (43, 2892), (47, 2907), (53, 2934), (55, 2940), (56, 2985), (58, 2997), (65, 3048), (66, 3051), (68, 3081), (73, 3123),

Gene: Dandelion\_10 Start: 3168, Stop: 3599, Start Num: 33

Candidate Starts for Dandelion\_10:

(11, 3063), (13, 3084), (Start: 16 @3090 has 2 MA's), (Start: 33 @3168 has 26 MA's), (43, 3243), (47, 3258), (53, 3285), (55, 3291), (56, 3336), (58, 3348), (65, 3399), (66, 3402), (68, 3432), (73, 3474),

Gene: Denise\_59 Start: 37230, Stop: 37658, Start Num: 28

Candidate Starts for Denise\_59:

(Start: 28 @37230 has 1 MA's), (46, 37338), (57, 37440), (58, 37449),

Gene: Drazdys\_9 Start: 2817, Stop: 3251, Start Num: 33

Candidate Starts for Drazdys\_9:

(19, 2760), (Start: 33 @2817 has 26 MA's), (43, 2892), (47, 2907), (53, 2934), (55, 2940), (56, 2985), (58, 2997), (65, 3048), (66, 3051), (68, 3081), (73, 3123),

Gene: Duplicity\_53 Start: 35954, Stop: 36301, Start Num: 33

Candidate Starts for Duplicity\_53:

(Start: 16 @35864 has 2 MA's), (Start: 21 @35900 has 1 MA's), (Start: 33 @35954 has 26 MA's), (40, 35996), (41, 36017), (54, 36068), (67, 36197), (72, 36239),

Gene: Farewell\_69 Start: 47142, Stop: 47591, Start Num: 16

Candidate Starts for Farewell\_69:

(6, 47049), (10, 47109), (12, 47133), (Start: 16 @47142 has 2 MA's), (Start: 21 @47178 has 1 MA's), (Start: 33 @47235 has 26 MA's), (57, 47406), (61, 47436), (62, 47442), (63, 47445), (64, 47448), (71, 47520), (75, 47553),

Gene: Forsytheast\_61 Start: 40140, Stop: 39913, Start Num: 44

Candidate Starts for Forsytheast\_61:

(Start: 44 @40140 has 8 MA's), (52, 40092), (58, 40032),

Gene: FrayBell\_10 Start: 2978, Stop: 3421, Start Num: 30

Candidate Starts for FrayBell\_10:

(9, 2861), (13, 2891), (20, 2918), (27, 2954), (Start: 30 @2978 has 5 MA's), (43, 3065), (47, 3080), (53, 3107), (55, 3113), (56, 3158), (58, 3170), (65, 3221), (66, 3224), (68, 3254), (73, 3296),

Gene: GodPhather\_65 Start: 49176, Stop: 49409, Start Num: 44

Candidate Starts for GodPhather\_65:

(Start: 44 @49176 has 8 MA's), (52, 49224), (58, 49284), (71, 49389),

Gene: I3\_8 Start: 2847, Stop: 3332, Start Num: 33

Candidate Starts for I3\_8:

(20, 2790), (25, 2823), (Start: 33 @2847 has 26 MA's), (45, 2940), (50, 2988), (51, 3006), (53, 3012), (58, 3078), (65, 3129), (66, 3132), (68, 3162), (73, 3204),

Gene: InterFolia\_10 Start: 2977, Stop: 3420, Start Num: 30

Candidate Starts for InterFolia\_10:

(9, 2860), (13, 2890), (20, 2917), (27, 2953), (Start: 30 @2977 has 5 MA's), (43, 3064), (47, 3079), (53, 3106), (55, 3112), (56, 3157), (58, 3169), (65, 3220), (66, 3223), (68, 3253), (73, 3295),

Gene: JayJay\_8 Start: 2506, Stop: 2949, Start Num: 30

Candidate Starts for JayJay\_8:

(9, 2389), (13, 2419), (20, 2446), (27, 2482), (Start: 30 @2506 has 5 MA's), (43, 2593), (47, 2608), (53, 2635), (55, 2641), (56, 2686), (58, 2698), (65, 2749), (66, 2752), (68, 2782), (73, 2824),

Gene: Jeon\_63 Start: 48868, Stop: 49173, Start Num: 33

Candidate Starts for Jeon\_63:

(7, 48709), (Start: 33 @48868 has 26 MA's), (35, 48880), (43, 48943), (47, 48958), (53, 48985), (55, 48991), (57, 49039), (71, 49153),

Gene: JigglyPuff\_8 Start: 2522, Stop: 2965, Start Num: 30

Candidate Starts for JigglyPuff\_8:

(9, 2405), (13, 2435), (20, 2462), (27, 2498), (Start: 30 @2522 has 5 MA's), (43, 2609), (47, 2624), (53, 2651), (55, 2657), (56, 2702), (58, 2714), (65, 2765), (66, 2768), (68, 2798), (73, 2840),

Gene: Kamryn\_7 Start: 2148, Stop: 2579, Start Num: 33

Candidate Starts for Kamryn\_7:

(19, 2091), (Start: 33 @2148 has 26 MA's), (43, 2223), (47, 2238), (53, 2265), (55, 2271), (56, 2316), (58, 2328), (65, 2379), (66, 2382), (68, 2412), (73, 2454),

Gene: LilSpotty\_71 Start: 43082, Stop: 43513, Start Num: 33

Candidate Starts for LilSpotty\_71:

(Start: 16 @42992 has 2 MA's), (Start: 21 @43028 has 1 MA's), (Start: 33 @43082 has 26 MA's), (40, 43124), (60, 43286), (67, 43349), (78, 43466),

Gene: LinStu\_9 Start: 3505, Stop: 3948, Start Num: 30

Candidate Starts for LinStu\_9:

(9, 3388), (13, 3418), (20, 3445), (27, 3481), (Start: 30 @3505 has 5 MA's), (43, 3592), (47, 3607), (53, 3634), (55, 3640), (56, 3685), (58, 3697), (65, 3748), (66, 3751), (68, 3781), (73, 3823),

Gene: LordLeafolot\_10 Start: 2977, Stop: 3420, Start Num: 30

Candidate Starts for LordLeafolot\_10:

(9, 2860), (13, 2890), (20, 2917), (27, 2953), (Start: 30 @2977 has 5 MA's), (43, 3064), (47, 3079), (53, 3106), (55, 3112), (56, 3157), (58, 3169), (65, 3220), (66, 3223), (68, 3253), (73, 3295),

Gene: Martik\_82 Start: 51049, Stop: 51432, Start Num: 33

Candidate Starts for Martik\_82:

(14, 50959), (17, 50974), (24, 51016), (Start: 33 @51049 has 26 MA's), (48, 51160), (49, 51169), (56, 51241), (58, 51253), (74, 51379),

Gene: Melville\_59 Start: 36268, Stop: 36615, Start Num: 33

Candidate Starts for Melville\_59:

(Start: 16 @36178 has 2 MA's), (Start: 21 @36214 has 1 MA's), (Start: 33 @36268 has 26 MA's), (40, 36310), (41, 36331), (54, 36382), (67, 36511), (72, 36553),

Gene: Mikro\_7 Start: 3147, Stop: 3578, Start Num: 33

Candidate Starts for Mikro\_7:

(19, 3090), (Start: 33 @3147 has 26 MA's), (43, 3222), (47, 3237), (53, 3264), (55, 3270), (56, 3315), (58, 3327), (65, 3378), (66, 3381), (68, 3411), (73, 3453),

Gene: MilleniumForce\_53 Start: 38559, Stop: 38825, Start Num: 38

Candidate Starts for MilleniumForce\_53:

(Start: 38 @38559 has 1 MA's), (39, 38562), (42, 38589), (46, 38616), (51, 38640),

Gene: MoMoMixon\_7 Start: 2383, Stop: 2814, Start Num: 33

Candidate Starts for MoMoMixon\_7:

(23, 2347), (Start: 33 @2383 has 26 MA's), (43, 2458), (47, 2473), (53, 2500), (55, 2506), (56, 2551), (58, 2563), (65, 2614), (66, 2617), (68, 2647), (73, 2689),

Gene: Moose\_61 Start: 40140, Stop: 39913, Start Num: 44

Candidate Starts for Moose\_61:

(Start: 44 @40140 has 8 MA's), (52, 40092), (58, 40032),

Gene: Nidhogg\_7 Start: 2383, Stop: 2814, Start Num: 33

Candidate Starts for Nidhogg\_7:

(22, 2347), (Start: 33 @2383 has 26 MA's), (43, 2458), (47, 2473), (53, 2500), (55, 2506), (56, 2551), (58, 2563), (65, 2614), (66, 2617), (68, 2647), (73, 2689),

Gene: NoodleTree\_7 Start: 2148, Stop: 2579, Start Num: 33

Candidate Starts for NoodleTree\_7:

(19, 2091), (Start: 33 @2148 has 26 MA's), (43, 2223), (47, 2238), (53, 2265), (55, 2271), (56, 2316), (58, 2328), (65, 2379), (66, 2382), (68, 2412), (73, 2454),

Gene: NuevoMundo\_9 Start: 2841, Stop: 3272, Start Num: 33

Candidate Starts for NuevoMundo\_9:

(11, 2736), (13, 2757), (Start: 16 @2763 has 2 MA's), (Start: 33 @2841 has 26 MA's), (43, 2916), (47, 2931), (53, 2958), (55, 2964), (56, 3009), (58, 3021), (65, 3072), (66, 3075), (68, 3105), (73, 3147),

Gene: Ogopogo\_51 Start: 36143, Stop: 36514, Start Num: 21

Candidate Starts for Ogopogo\_51:

(Start: 21 @36143 has 1 MA's), (26, 36155), (29, 36176), (31, 36182), (Start: 33 @36191 has 26 MA's), (57, 36362), (69, 36458), (70, 36467),

Gene: Pepe\_58 Start: 39571, Stop: 39344, Start Num: 44

Candidate Starts for Pepe\_58:

(Start: 44 @39571 has 8 MA's), (52, 39523), (58, 39463), (59, 39460),

Gene: Pier\_10 Start: 2844, Stop: 3275, Start Num: 33

Candidate Starts for Pier\_10:

(11, 2739), (13, 2760), (Start: 16 @2766 has 2 MA's), (Start: 33 @2844 has 26 MA's), (43, 2919), (47, 2934), (53, 2961), (55, 2967), (56, 3012), (58, 3024), (65, 3075), (66, 3078), (68, 3108), (73, 3150),

Gene: Pio\_8 Start: 2537, Stop: 2968, Start Num: 33

Candidate Starts for Pio\_8:

(23, 2501), (Start: 33 @2537 has 26 MA's), (43, 2612), (47, 2627), (53, 2654), (55, 2660), (56, 2705), (58, 2717), (65, 2768), (66, 2771), (68, 2801), (73, 2843),

Gene: Royals2015\_53 Start: 36891, Stop: 37130, Start Num: 37

Candidate Starts for Royals2015\_53:

(Start: 37 @36891 has 4 MA's), (42, 36924), (46, 36951), (51, 36975), (69, 37113),

Gene: Sauce\_7 Start: 2387, Stop: 2818, Start Num: 33

Candidate Starts for Sauce\_7:

(22, 2351), (Start: 33 @2387 has 26 MA's), (43, 2462), (47, 2477), (53, 2504), (55, 2510), (56, 2555), (58, 2567), (65, 2618), (66, 2621), (68, 2651), (73, 2693),

Gene: Seanderson\_62 Start: 42352, Stop: 42125, Start Num: 44



Candidate Starts for Seanderson\_62:  
(Start: 44 @42352 has 8 MA's), (52, 42304), (58, 42244),

Gene: Sebata\_9 Start: 3505, Stop: 3948, Start Num: 30  
Candidate Starts for Sebata\_9:  
(9, 3388), (13, 3418), (20, 3445), (27, 3481), (Start: 30 @3505 has 5 MA's), (43, 3592), (47, 3607), (53, 3634), (55, 3640), (56, 3685), (58, 3697), (65, 3748), (66, 3751), (68, 3781), (73, 3823),

Gene: ShowerHandel\_83 Start: 48976, Stop: 49359, Start Num: 33  
Candidate Starts for ShowerHandel\_83:  
(Start: 33 @48976 has 26 MA's), (34, 48985), (48, 49087), (49, 49096), (56, 49168), (58, 49180), (74, 49306),

Gene: Silvafighter\_56 Start: 36170, Stop: 36607, Start Num: 16  
Candidate Starts for Silvafighter\_56:  
(Start: 16 @36170 has 2 MA's), (Start: 21 @36206 has 1 MA's), (Start: 33 @36260 has 26 MA's), (40, 36302), (41, 36323), (54, 36374), (67, 36503), (72, 36545),

Gene: SkiPole\_67 Start: 41615, Stop: 41388, Start Num: 44  
Candidate Starts for SkiPole\_67:  
(Start: 44 @41615 has 8 MA's), (52, 41567), (58, 41507), (59, 41504),

Gene: Specks\_10 Start: 2977, Stop: 3420, Start Num: 30  
Candidate Starts for Specks\_10:  
(9, 2860), (13, 2890), (20, 2917), (27, 2953), (Start: 30 @2977 has 5 MA's), (43, 3064), (47, 3079), (53, 3106), (55, 3112), (56, 3157), (58, 3169), (65, 3220), (66, 3223), (68, 3253), (73, 3295),

Gene: Spud\_8 Start: 2537, Stop: 2968, Start Num: 33  
Candidate Starts for Spud\_8:  
(23, 2501), (Start: 33 @2537 has 26 MA's), (43, 2612), (47, 2627), (53, 2654), (55, 2660), (56, 2705), (58, 2717), (65, 2768), (66, 2771), (68, 2801), (73, 2843),

Gene: StephanieG\_9 Start: 2844, Stop: 3275, Start Num: 33  
Candidate Starts for StephanieG\_9:  
(11, 2739), (13, 2760), (Start: 16 @2766 has 2 MA's), (Start: 33 @2844 has 26 MA's), (43, 2919), (47, 2934), (53, 2961), (55, 2967), (56, 3012), (58, 3024), (65, 3075), (66, 3078), (68, 3108), (73, 3150),

Gene: SwissCheese\_63 Start: 40640, Stop: 40413, Start Num: 44  
Candidate Starts for SwissCheese\_63:  
(Start: 44 @40640 has 8 MA's), (52, 40592), (58, 40532),

Gene: Tainan\_10 Start: 2977, Stop: 3420, Start Num: 30  
Candidate Starts for Tainan\_10:  
(9, 2860), (13, 2890), (20, 2917), (27, 2953), (Start: 30 @2977 has 5 MA's), (43, 3064), (47, 3079), (53, 3106), (55, 3112), (56, 3157), (58, 3169), (65, 3220), (66, 3223), (68, 3253), (73, 3295),

Gene: Tortellini\_64 Start: 43747, Stop: 44214, Start Num: 18  
Candidate Starts for Tortellini\_64:  
(11, 43702), (Start: 18 @43747 has 1 MA's), (32, 43822), (36, 43846), (42, 43888), (76, 44155), (77, 44200),

Gene: Tyke\_9 Start: 2817, Stop: 3251, Start Num: 33  
Candidate Starts for Tyke\_9:

(19, 2760), (Start: 33 @2817 has 26 MA's), (43, 2892), (47, 2907), (53, 2934), (55, 2940), (56, 2985),  
(58, 2997), (65, 3048), (66, 3051), (68, 3081), (73, 3123),