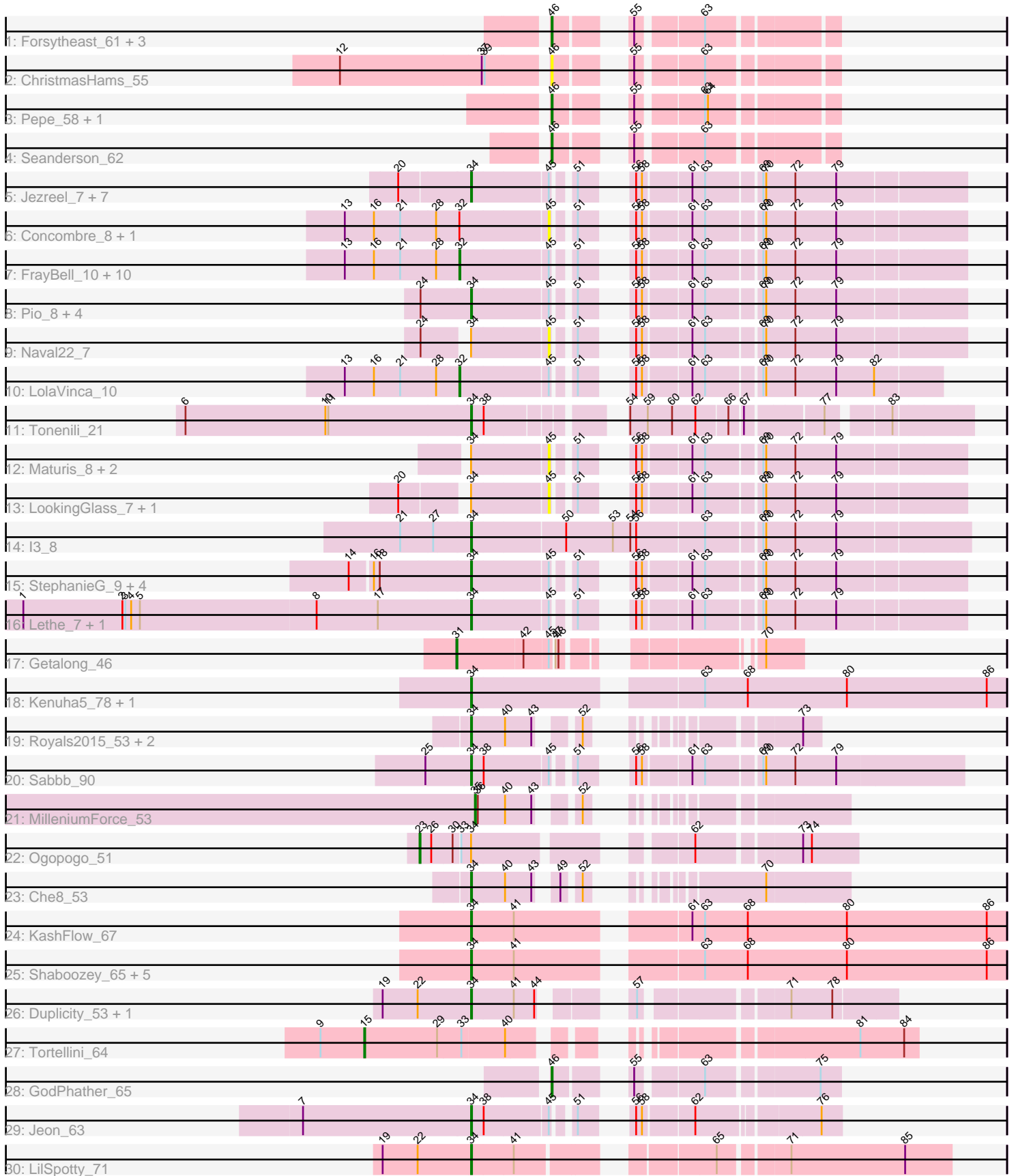


# Pham 296528



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 296528 Report

This analysis was run 04/25/26 on database version 644.

Pham number 296528 has 73 members, 16 are drafts.

Phages represented in each track:

- Track 1 : Forsytheast\_61, Moose\_61, Bruns\_61, SwissCheese\_63
- Track 2 : ChristmasHams\_55
- Track 3 : Pepe\_58, SkiPole\_67
- Track 4 : Seanderson\_62
- Track 5 : Jezreel\_7, Mikro\_7, Bxz1\_7, Drazdys\_9, Kamryn\_7, DTDevon\_9, Tyke\_9, NoodleTree\_7
- Track 6 : Concombre\_8, Demodog\_7
- Track 7 : FrayBell\_10, JigglyPuff\_8, JayJay\_9, PharkleMinkus\_10, LordLeafolot\_10, Pupusa\_10, InterFolia\_10, Specks\_10, Tainan\_10, LinStu\_9, Sebata\_9
- Track 8 : Pio\_8, Sauce\_7, Spud\_8, MoMoMixon\_7, Nidhogg\_7
- Track 9 : Naval22\_7
- Track 10 : LolaVinca\_10
- Track 11 : Tonenili\_21
- Track 12 : Maturis\_8, Montpel\_7, Lunareta\_7
- Track 13 : LookingGlass\_7, Rocha\_7
- Track 14 : l3\_8
- Track 15 : StephanieG\_9, Astraea\_9, Pier\_10, NuevoMundo\_9, Dandelion\_10
- Track 16 : Lethe\_7, Bigswole\_6
- Track 17 : Getalong\_46
- Track 18 : Kenuha5\_78, Nekros\_71
- Track 19 : Royals2015\_53, ArcusAngelus\_54, Chevrolet\_57
- Track 20 : Sabbb\_90
- Track 21 : MilleniumForce\_53
- Track 22 : Ogopogo\_51
- Track 23 : Che8\_53
- Track 24 : KashFlow\_67
- Track 25 : Shaboozey\_65, Hannaconda\_69, BronnyJames\_66, Aubs\_83, Donkeykong\_89, SuperGrey\_83
- Track 26 : Duplicity\_53, Melville\_59
- Track 27 : Tortellini\_64
- Track 28 : GodPhather\_65
- Track 29 : Jeon\_63
- Track 30 : 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 34, it was called in 37 of the 57 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ArcusAngelus\_54, Astraea\_9, Aubs\_83, Bigswole\_6, BronnyJames\_66, Bxz1\_7, Che8\_53, Chevrolet\_57, DTDevon\_9, Dandelion\_10, Donkeykong\_89, Drazdys\_9, Duplicity\_53, Hannaconda\_69, I3\_8, Jeon\_63, Jezreel\_7, Kamryn\_7, KashFlow\_67, Kenuha5\_78, Lethe\_7, LilSpotty\_71, Melville\_59, Mikro\_7, MoMoMixon\_7, Nekros\_71, Nidhogg\_7, NoodleTree\_7, NuevoMundo\_9, Pier\_10, Pio\_8, Royals2015\_53, Sabbb\_90, Sauce\_7, Shaboozey\_65, Spud\_8, StephanieG\_9, SuperGrey\_83, Tonenili\_21, Tyke\_9,

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

- LookingGlass\_7, Lunareta\_7, Maturis\_8, Montpel\_7, Naval22\_7, Ogopogo\_51, Rocha\_7,

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

- Bruns\_61, ChristmasHams\_55, Concombre\_8, Demodog\_7, Forsytheast\_61, FrayBell\_10, Getalong\_46, GodPhather\_65, InterFolia\_10, JayJay\_9, JigglyPuff\_8, LinStu\_9, LolaVinca\_10, LordLeafolot\_10, MilleniumForce\_53, Moose\_61, Pepe\_58, PharkleMinkus\_10, Pupusa\_10, Seanderson\_62, Sebata\_9, SkiPole\_67, Specks\_10, SwissCheese\_63, Tainan\_10, Tortellini\_64,

### Summary by start number:

Start 15:

- Found in 1 of 73 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Tortellini\_64 (P2),

Start 23:

- Found in 1 of 73 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ogopogo\_51 (F1),

Start 31:

- Found in 1 of 73 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Getalong\_46 (DN1),

Start 32:

- Found in 14 of 73 ( 19.2% ) of genes in pham
- Manual Annotations of this start: 8 of 57
- Called 85.7% of time when present
- Phage (with cluster) where this start called: FrayBell\_10 (C1), InterFolia\_10 (C1), JayJay\_9 (C1), JigglyPuff\_8 (C1), LinStu\_9 (C1), LolaVinca\_10 (C1), LordLeafolot\_10 (C1), PharkleMinkus\_10 (C1), Pupusa\_10 (C1), Sebata\_9 (C1), Specks\_10 (C1), Tainan\_10 (C1),

#### Start 34:

- Found in 47 of 73 ( 64.4% ) of genes in pham
- Manual Annotations of this start: 37 of 57
- Called 85.1% of time when present
- Phage (with cluster) where this start called: ArcusAngelus\_54 (F1), Astraea\_9 (C1), Aubs\_83 (F1), Bigswole\_6 (C1), BronnyJames\_66 (J), Bxz1\_7 (C1), Che8\_53 (F1), Chevrolet\_57 (F1), DTDevon\_9 (C1), Dandelion\_10 (C1), Donkeykong\_89 (F1), Drazdys\_9 (C1), Duplicity\_53 (N), Hannaconda\_69 (J), l3\_8 (C1), Jeon\_63 (W), Jezreel\_7 (C1), Kamryn\_7 (C1), KashFlow\_67 (J), Kenuha5\_78 (F1), Lethe\_7 (C1), LilSpotty\_71 (singleton), Melville\_59 (N), Mikro\_7 (C1), MoMoMixon\_7 (C1), Nekros\_71 (J), Nidhogg\_7 (C1), NoodleTree\_7 (C1), NuevoMundo\_9 (C1), Pier\_10 (C1), Pio\_8 (C1), Royals2015\_53 (F1), Sabbb\_90 (F1), Sauce\_7 (C1), Shaboozey\_65 (J), Spud\_8 (C1), StephanieG\_9 (C1), SuperGrey\_83 (F1), Tonenili\_21 (C1), Tyke\_9 (C1),

#### Start 35:

- Found in 1 of 73 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MilleniumForce\_53 (F1),

#### Start 45:

- Found in 43 of 73 ( 58.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 18.6% of time when present
- Phage (with cluster) where this start called: Concombre\_8 (C1), Demodog\_7 (C1), LookingGlass\_7 (C1), Lunareta\_7 (C1), Maturis\_8 (C1), Montpel\_7 (C1), Naval22\_7 (C1), Rocha\_7 (C1),

#### Start 46:

- Found in 9 of 73 ( 12.3% ) of genes in pham
- Manual Annotations of this start: 8 of 57
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bruns\_61 (A1), ChristmasHams\_55 (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, J, N, A1, DN1, W, C1,

Info for manual annotations of cluster A1:

- Start number 46 was manually annotated 7 times for cluster A1.

Info for manual annotations of cluster C1:

- Start number 32 was manually annotated 8 times for cluster C1.
- Start number 34 was manually annotated 22 times for cluster C1.

Info for manual annotations of cluster DN1:

- Start number 31 was manually annotated 1 time for cluster DN1.

Info for manual annotations of cluster F1:

- Start number 23 was manually annotated 1 time for cluster F1.
- Start number 34 was manually annotated 9 times for cluster F1.
- Start number 35 was manually annotated 1 time for cluster F1.

Info for manual annotations of cluster J:

- Start number 34 was manually annotated 2 times for cluster J.

Info for manual annotations of cluster N:

- Start number 34 was manually annotated 2 times for cluster N.

Info for manual annotations of cluster P2:

- Start number 15 was manually annotated 1 time for cluster P2.

Info for manual annotations of cluster W:

- Start number 34 was manually annotated 1 time for cluster W.
- Start number 46 was manually annotated 1 time for cluster W.

### **Gene Information:**

Gene: ArcusAngelus\_54 Start: 38017, Stop: 38256, Start Num: 34

Candidate Starts for ArcusAngelus\_54:

(Start: 34 @38017 has 37 MA's), (40, 38050), (43, 38077), (52, 38101), (73, 38239),

Gene: Astraea\_9 Start: 2499, Stop: 2930, Start Num: 34

Candidate Starts for Astraea\_9:

(14, 2394), (16, 2415), (18, 2421), (Start: 34 @2499 has 37 MA's), (45, 2574), (51, 2589), (56, 2616), (58, 2622), (61, 2667), (63, 2679), (69, 2730), (70, 2733), (72, 2763), (79, 2805),

Gene: Aubs\_83 Start: 50008, Stop: 50520, Start Num: 34

Candidate Starts for Aubs\_83:

(Start: 34 @50008 has 37 MA's), (41, 50050), (63, 50212), (68, 50254), (80, 50356), (86, 50500),

Gene: Bigswole\_6 Start: 2050, Stop: 2481, Start Num: 34

Candidate Starts for Bigswole\_6:

(1, 1606), (2, 1708), (3, 1711), (4, 1717), (5, 1726), (8, 1906), (17, 1969), (Start: 34 @2050 has 37 MA's), (45, 2125), (51, 2140), (56, 2167), (58, 2173), (61, 2218), (63, 2230), (69, 2281), (70, 2284), (72, 2314), (79, 2356),

Gene: BronnyJames\_66 Start: 44654, Stop: 44142, Start Num: 34

Candidate Starts for BronnyJames\_66:

(Start: 34 @44654 has 37 MA's), (41, 44612), (63, 44450), (68, 44408), (80, 44306), (86, 44162),

Gene: Bruns\_61 Start: 39972, Stop: 39745, Start Num: 46

Candidate Starts for Bruns\_61:

(Start: 46 @39972 has 8 MA's), (55, 39924), (63, 39864),

Gene: Bxz1\_7 Start: 2148, Stop: 2579, Start Num: 34

Candidate Starts for Bxz1\_7:

(20, 2091), (Start: 34 @2148 has 37 MA's), (45, 2223), (51, 2238), (56, 2265), (58, 2271), (61, 2316), (63, 2328), (69, 2379), (70, 2382), (72, 2412), (79, 2454),

Gene: Che8\_53 Start: 37842, Stop: 38123, Start Num: 34  
Candidate Starts for Che8\_53:  
(Start: 34 @37842 has 37 MA's), (40, 37875), (43, 37902), (49, 37914), (52, 37926), (70, 38040),

Gene: Chevrolet\_57 Start: 38018, Stop: 38257, Start Num: 34  
Candidate Starts for Chevrolet\_57:  
(Start: 34 @38018 has 37 MA's), (40, 38051), (43, 38078), (52, 38102), (73, 38240),

Gene: ChristmasHams\_55 Start: 38539, Stop: 38312, Start Num: 46  
Candidate Starts for ChristmasHams\_55:  
(12, 38740), (37, 38596), (39, 38593), (Start: 46 @38539 has 8 MA's), (55, 38491), (63, 38431),

Gene: Concombre\_8 Start: 2242, Stop: 2598, Start Num: 45  
Candidate Starts for Concombre\_8:  
(13, 2038), (16, 2068), (21, 2095), (28, 2131), (Start: 32 @2155 has 8 MA's), (45, 2242), (51, 2257),  
(56, 2284), (58, 2290), (61, 2335), (63, 2347), (69, 2398), (70, 2401), (72, 2431), (79, 2473),

Gene: DTDevon\_9 Start: 2817, Stop: 3251, Start Num: 34  
Candidate Starts for DTDevon\_9:  
(20, 2760), (Start: 34 @2817 has 37 MA's), (45, 2892), (51, 2907), (56, 2934), (58, 2940), (61, 2985),  
(63, 2997), (69, 3048), (70, 3051), (72, 3081), (79, 3123),

Gene: Dandelion\_10 Start: 3168, Stop: 3599, Start Num: 34  
Candidate Starts for Dandelion\_10:  
(14, 3063), (16, 3084), (18, 3090), (Start: 34 @3168 has 37 MA's), (45, 3243), (51, 3258), (56, 3285),  
(58, 3291), (61, 3336), (63, 3348), (69, 3399), (70, 3402), (72, 3432), (79, 3474),

Gene: Demodog\_7 Start: 2242, Stop: 2598, Start Num: 45  
Candidate Starts for Demodog\_7:  
(13, 2038), (16, 2068), (21, 2095), (28, 2131), (Start: 32 @2155 has 8 MA's), (45, 2242), (51, 2257),  
(56, 2284), (58, 2290), (61, 2335), (63, 2347), (69, 2398), (70, 2401), (72, 2431), (79, 2473),

Gene: Donkeykong\_89 Start: 51613, Stop: 52125, Start Num: 34  
Candidate Starts for Donkeykong\_89:  
(Start: 34 @51613 has 37 MA's), (41, 51655), (63, 51817), (68, 51859), (80, 51961), (86, 52105),

Gene: Drazdys\_9 Start: 2817, Stop: 3251, Start Num: 34  
Candidate Starts for Drazdys\_9:  
(20, 2760), (Start: 34 @2817 has 37 MA's), (45, 2892), (51, 2907), (56, 2934), (58, 2940), (61, 2985),  
(63, 2997), (69, 3048), (70, 3051), (72, 3081), (79, 3123),

Gene: Duplicity\_53 Start: 35954, Stop: 36301, Start Num: 34  
Candidate Starts for Duplicity\_53:  
(19, 35864), (22, 35900), (Start: 34 @35954 has 37 MA's), (41, 35996), (44, 36017), (57, 36068), (71,  
36197), (78, 36239),

Gene: Forsytheast\_61 Start: 40140, Stop: 39913, Start Num: 46  
Candidate Starts for Forsytheast\_61:  
(Start: 46 @40140 has 8 MA's), (55, 40092), (63, 40032),

Gene: FrayBell\_10 Start: 2978, Stop: 3421, Start Num: 32  
Candidate Starts for FrayBell\_10:

(13, 2861), (16, 2891), (21, 2918), (28, 2954), (Start: 32 @2978 has 8 MA's), (45, 3065), (51, 3080), (56, 3107), (58, 3113), (61, 3158), (63, 3170), (69, 3221), (70, 3224), (72, 3254), (79, 3296),

Gene: Getalong\_46 Start: 32723, Stop: 33001, Start Num: 31

Candidate Starts for Getalong\_46:

(Start: 31 @32723 has 1 MA's), (42, 32789), (45, 32813), (47, 32816), (48, 32819), (70, 32963),

Gene: GodPhather\_65 Start: 49176, Stop: 49409, Start Num: 46

Candidate Starts for GodPhather\_65:

(Start: 46 @49176 has 8 MA's), (55, 49224), (63, 49284), (75, 49389),

Gene: Hannaconda\_69 Start: 45759, Stop: 45247, Start Num: 34

Candidate Starts for Hannaconda\_69:

(Start: 34 @45759 has 37 MA's), (41, 45717), (63, 45555), (68, 45513), (80, 45411), (86, 45267),

Gene: I3\_8 Start: 2847, Stop: 3332, Start Num: 34

Candidate Starts for I3\_8:

(21, 2790), (27, 2823), (Start: 34 @2847 has 37 MA's), (50, 2940), (53, 2988), (54, 3006), (56, 3012), (63, 3078), (69, 3129), (70, 3132), (72, 3162), (79, 3204),

Gene: InterFolia\_10 Start: 2977, Stop: 3420, Start Num: 32

Candidate Starts for InterFolia\_10:

(13, 2860), (16, 2890), (21, 2917), (28, 2953), (Start: 32 @2977 has 8 MA's), (45, 3064), (51, 3079), (56, 3106), (58, 3112), (61, 3157), (63, 3169), (69, 3220), (70, 3223), (72, 3253), (79, 3295),

Gene: JayJay\_9 Start: 2506, Stop: 2949, Start Num: 32

Candidate Starts for JayJay\_9:

(13, 2389), (16, 2419), (21, 2446), (28, 2482), (Start: 32 @2506 has 8 MA's), (45, 2593), (51, 2608), (56, 2635), (58, 2641), (61, 2686), (63, 2698), (69, 2749), (70, 2752), (72, 2782), (79, 2824),

Gene: Jeon\_63 Start: 48868, Stop: 49173, Start Num: 34

Candidate Starts for Jeon\_63:

(7, 48709), (Start: 34 @48868 has 37 MA's), (38, 48880), (45, 48943), (51, 48958), (56, 48985), (58, 48991), (62, 49039), (76, 49153),

Gene: Jezreel\_7 Start: 2148, Stop: 2579, Start Num: 34

Candidate Starts for Jezreel\_7:

(20, 2091), (Start: 34 @2148 has 37 MA's), (45, 2223), (51, 2238), (56, 2265), (58, 2271), (61, 2316), (63, 2328), (69, 2379), (70, 2382), (72, 2412), (79, 2454),

Gene: JigglyPuff\_8 Start: 2522, Stop: 2965, Start Num: 32

Candidate Starts for JigglyPuff\_8:

(13, 2405), (16, 2435), (21, 2462), (28, 2498), (Start: 32 @2522 has 8 MA's), (45, 2609), (51, 2624), (56, 2651), (58, 2657), (61, 2702), (63, 2714), (69, 2765), (70, 2768), (72, 2798), (79, 2840),

Gene: Kamryn\_7 Start: 2148, Stop: 2579, Start Num: 34

Candidate Starts for Kamryn\_7:

(20, 2091), (Start: 34 @2148 has 37 MA's), (45, 2223), (51, 2238), (56, 2265), (58, 2271), (61, 2316), (63, 2328), (69, 2379), (70, 2382), (72, 2412), (79, 2454),

Gene: KashFlow\_67 Start: 45630, Stop: 45118, Start Num: 34

Candidate Starts for KashFlow\_67:

(Start: 34 @45630 has 37 MA's), (41, 45588), (61, 45438), (63, 45426), (68, 45384), (80, 45282), (86, 45138),

Gene: Kenuha5\_78 Start: 49646, Stop: 50158, Start Num: 34

Candidate Starts for Kenuha5\_78:

(Start: 34 @49646 has 37 MA's), (63, 49850), (68, 49892), (80, 49994), (86, 50138),

Gene: Lethe\_7 Start: 2050, Stop: 2481, Start Num: 34

Candidate Starts for Lethe\_7:

(1, 1606), (2, 1708), (3, 1711), (4, 1717), (5, 1726), (8, 1906), (17, 1969), (Start: 34 @2050 has 37 MA's), (45, 2125), (51, 2140), (56, 2167), (58, 2173), (61, 2218), (63, 2230), (69, 2281), (70, 2284), (72, 2314), (79, 2356),

Gene: LilSpotty\_71 Start: 43082, Stop: 43513, Start Num: 34

Candidate Starts for LilSpotty\_71:

(19, 42992), (22, 43028), (Start: 34 @43082 has 37 MA's), (41, 43124), (65, 43286), (71, 43349), (85, 43466),

Gene: LinStu\_9 Start: 3505, Stop: 3948, Start Num: 32

Candidate Starts for LinStu\_9:

(13, 3388), (16, 3418), (21, 3445), (28, 3481), (Start: 32 @3505 has 8 MA's), (45, 3592), (51, 3607), (56, 3634), (58, 3640), (61, 3685), (63, 3697), (69, 3748), (70, 3751), (72, 3781), (79, 3823),

Gene: LolaVinca\_10 Start: 2977, Stop: 3399, Start Num: 32

Candidate Starts for LolaVinca\_10:

(13, 2860), (16, 2890), (21, 2917), (28, 2953), (Start: 32 @2977 has 8 MA's), (45, 3064), (51, 3079), (56, 3106), (58, 3112), (61, 3157), (63, 3169), (69, 3220), (70, 3223), (72, 3253), (79, 3295), (82, 3334),

Gene: LookingGlass\_7 Start: 2223, Stop: 2579, Start Num: 45

Candidate Starts for LookingGlass\_7:

(20, 2091), (Start: 34 @2148 has 37 MA's), (45, 2223), (51, 2238), (56, 2265), (58, 2271), (61, 2316), (63, 2328), (69, 2379), (70, 2382), (72, 2412), (79, 2454),

Gene: LordLeafolot\_10 Start: 2977, Stop: 3420, Start Num: 32

Candidate Starts for LordLeafolot\_10:

(13, 2860), (16, 2890), (21, 2917), (28, 2953), (Start: 32 @2977 has 8 MA's), (45, 3064), (51, 3079), (56, 3106), (58, 3112), (61, 3157), (63, 3169), (69, 3220), (70, 3223), (72, 3253), (79, 3295),

Gene: Lunareta\_7 Start: 2252, Stop: 2608, Start Num: 45

Candidate Starts for Lunareta\_7:

(Start: 34 @2177 has 37 MA's), (45, 2252), (51, 2267), (56, 2294), (58, 2300), (61, 2345), (63, 2357), (69, 2408), (70, 2411), (72, 2441), (79, 2483),

Gene: Maturis\_8 Start: 2252, Stop: 2608, Start Num: 45

Candidate Starts for Maturis\_8:

(Start: 34 @2177 has 37 MA's), (45, 2252), (51, 2267), (56, 2294), (58, 2300), (61, 2345), (63, 2357), (69, 2408), (70, 2411), (72, 2441), (79, 2483),

Gene: Melville\_59 Start: 36268, Stop: 36615, Start Num: 34

Candidate Starts for Melville\_59:

(19, 36178), (22, 36214), (Start: 34 @36268 has 37 MA's), (41, 36310), (44, 36331), (57, 36382), (71, 36511), (78, 36553),

Gene: Mikro\_7 Start: 3147, Stop: 3578, Start Num: 34

Candidate Starts for Mikro\_7:

(20, 3090), (Start: 34 @3147 has 37 MA's), (45, 3222), (51, 3237), (56, 3264), (58, 3270), (61, 3315), (63, 3327), (69, 3378), (70, 3381), (72, 3411), (79, 3453),

Gene: MilleniumForce\_53 Start: 38559, Stop: 38825, Start Num: 35

Candidate Starts for MilleniumForce\_53:

(Start: 35 @38559 has 1 MA's), (36, 38562), (40, 38589), (43, 38616), (52, 38640),

Gene: MoMoMixon\_7 Start: 2383, Stop: 2814, Start Num: 34

Candidate Starts for MoMoMixon\_7:

(24, 2347), (Start: 34 @2383 has 37 MA's), (45, 2458), (51, 2473), (56, 2500), (58, 2506), (61, 2551), (63, 2563), (69, 2614), (70, 2617), (72, 2647), (79, 2689),

Gene: Montpel\_7 Start: 2252, Stop: 2608, Start Num: 45

Candidate Starts for Montpel\_7:

(Start: 34 @2177 has 37 MA's), (45, 2252), (51, 2267), (56, 2294), (58, 2300), (61, 2345), (63, 2357), (69, 2408), (70, 2411), (72, 2441), (79, 2483),

Gene: Moose\_61 Start: 40140, Stop: 39913, Start Num: 46

Candidate Starts for Moose\_61:

(Start: 46 @40140 has 8 MA's), (55, 40092), (63, 40032),

Gene: Naval22\_7 Start: 2458, Stop: 2814, Start Num: 45

Candidate Starts for Naval22\_7:

(24, 2347), (Start: 34 @2383 has 37 MA's), (45, 2458), (51, 2473), (56, 2500), (58, 2506), (61, 2551), (63, 2563), (69, 2614), (70, 2617), (72, 2647), (79, 2689),

Gene: Nekros\_71 Start: 48970, Stop: 48458, Start Num: 34

Candidate Starts for Nekros\_71:

(Start: 34 @48970 has 37 MA's), (63, 48766), (68, 48724), (80, 48622), (86, 48478),

Gene: Nidhogg\_7 Start: 2383, Stop: 2814, Start Num: 34

Candidate Starts for Nidhogg\_7:

(24, 2347), (Start: 34 @2383 has 37 MA's), (45, 2458), (51, 2473), (56, 2500), (58, 2506), (61, 2551), (63, 2563), (69, 2614), (70, 2617), (72, 2647), (79, 2689),

Gene: NoodleTree\_7 Start: 2148, Stop: 2579, Start Num: 34

Candidate Starts for NoodleTree\_7:

(20, 2091), (Start: 34 @2148 has 37 MA's), (45, 2223), (51, 2238), (56, 2265), (58, 2271), (61, 2316), (63, 2328), (69, 2379), (70, 2382), (72, 2412), (79, 2454),

Gene: NuevoMundo\_9 Start: 2841, Stop: 3272, Start Num: 34

Candidate Starts for NuevoMundo\_9:

(14, 2736), (16, 2757), (18, 2763), (Start: 34 @2841 has 37 MA's), (45, 2916), (51, 2931), (56, 2958), (58, 2964), (61, 3009), (63, 3021), (69, 3072), (70, 3075), (72, 3105), (79, 3147),

Gene: Ogotogo\_51 Start: 36143, Stop: 36514, Start Num: 23

Candidate Starts for Ogotogo\_51:

(Start: 23 @36143 has 1 MA's), (26, 36155), (30, 36176), (33, 36182), (Start: 34 @36191 has 37 MA's), (62, 36362), (73, 36458), (74, 36467),

Gene: Pepe\_58 Start: 39571, Stop: 39344, Start Num: 46

Candidate Starts for Pepe\_58:

(Start: 46 @39571 has 8 MA's), (55, 39523), (63, 39463), (64, 39460),

Gene: PharkleMinkus\_10 Start: 2978, Stop: 3421, Start Num: 32

Candidate Starts for PharkleMinkus\_10:

(13, 2861), (16, 2891), (21, 2918), (28, 2954), (Start: 32 @2978 has 8 MA's), (45, 3065), (51, 3080), (56, 3107), (58, 3113), (61, 3158), (63, 3170), (69, 3221), (70, 3224), (72, 3254), (79, 3296),

Gene: Pier\_10 Start: 2844, Stop: 3275, Start Num: 34

Candidate Starts for Pier\_10:

(14, 2739), (16, 2760), (18, 2766), (Start: 34 @2844 has 37 MA's), (45, 2919), (51, 2934), (56, 2961), (58, 2967), (61, 3012), (63, 3024), (69, 3075), (70, 3078), (72, 3108), (79, 3150),

Gene: Pio\_8 Start: 2537, Stop: 2968, Start Num: 34

Candidate Starts for Pio\_8:

(24, 2501), (Start: 34 @2537 has 37 MA's), (45, 2612), (51, 2627), (56, 2654), (58, 2660), (61, 2705), (63, 2717), (69, 2768), (70, 2771), (72, 2801), (79, 2843),

Gene: Pupusa\_10 Start: 2977, Stop: 3420, Start Num: 32

Candidate Starts for Pupusa\_10:

(13, 2860), (16, 2890), (21, 2917), (28, 2953), (Start: 32 @2977 has 8 MA's), (45, 3064), (51, 3079), (56, 3106), (58, 3112), (61, 3157), (63, 3169), (69, 3220), (70, 3223), (72, 3253), (79, 3295),

Gene: Rocha\_7 Start: 2220, Stop: 2576, Start Num: 45

Candidate Starts for Rocha\_7:

(20, 2088), (Start: 34 @2145 has 37 MA's), (45, 2220), (51, 2235), (56, 2262), (58, 2268), (61, 2313), (63, 2325), (69, 2376), (70, 2379), (72, 2409), (79, 2451),

Gene: Royals2015\_53 Start: 36891, Stop: 37130, Start Num: 34

Candidate Starts for Royals2015\_53:

(Start: 34 @36891 has 37 MA's), (40, 36924), (43, 36951), (52, 36975), (73, 37113),

Gene: Sabbb\_90 Start: 48794, Stop: 49228, Start Num: 34

Candidate Starts for Sabbb\_90:

(25, 48755), (Start: 34 @48794 has 37 MA's), (38, 48806), (45, 48869), (51, 48884), (56, 48911), (58, 48917), (61, 48962), (63, 48974), (69, 49025), (70, 49028), (72, 49058), (79, 49100),

Gene: Sauce\_7 Start: 2387, Stop: 2818, Start Num: 34

Candidate Starts for Sauce\_7:

(24, 2351), (Start: 34 @2387 has 37 MA's), (45, 2462), (51, 2477), (56, 2504), (58, 2510), (61, 2555), (63, 2567), (69, 2618), (70, 2621), (72, 2651), (79, 2693),

Gene: Seanderson\_62 Start: 42352, Stop: 42125, Start Num: 46

Candidate Starts for Seanderson\_62:

(Start: 46 @42352 has 8 MA's), (55, 42304), (63, 42244),

Gene: Sebata\_9 Start: 3505, Stop: 3948, Start Num: 32

Candidate Starts for Sebata\_9:

(13, 3388), (16, 3418), (21, 3445), (28, 3481), (Start: 32 @3505 has 8 MA's), (45, 3592), (51, 3607), (56, 3634), (58, 3640), (61, 3685), (63, 3697), (69, 3748), (70, 3751), (72, 3781), (79, 3823),

Gene: Shaboozey\_65 Start: 44675, Stop: 44163, Start Num: 34

Candidate Starts for Shaboozey\_65:

(Start: 34 @44675 has 37 MA's), (41, 44633), (63, 44471), (68, 44429), (80, 44327), (86, 44183),

Gene: SkiPole\_67 Start: 41615, Stop: 41388, Start Num: 46

Candidate Starts for SkiPole\_67:

(Start: 46 @41615 has 8 MA's), (55, 41567), (63, 41507), (64, 41504),

Gene: Specks\_10 Start: 2977, Stop: 3420, Start Num: 32

Candidate Starts for Specks\_10:

(13, 2860), (16, 2890), (21, 2917), (28, 2953), (Start: 32 @2977 has 8 MA's), (45, 3064), (51, 3079), (56, 3106), (58, 3112), (61, 3157), (63, 3169), (69, 3220), (70, 3223), (72, 3253), (79, 3295),

Gene: Spud\_8 Start: 2537, Stop: 2968, Start Num: 34

Candidate Starts for Spud\_8:

(24, 2501), (Start: 34 @2537 has 37 MA's), (45, 2612), (51, 2627), (56, 2654), (58, 2660), (61, 2705), (63, 2717), (69, 2768), (70, 2771), (72, 2801), (79, 2843),

Gene: StephanieG\_9 Start: 2844, Stop: 3275, Start Num: 34

Candidate Starts for StephanieG\_9:

(14, 2739), (16, 2760), (18, 2766), (Start: 34 @2844 has 37 MA's), (45, 2919), (51, 2934), (56, 2961), (58, 2967), (61, 3012), (63, 3024), (69, 3075), (70, 3078), (72, 3108), (79, 3150),

Gene: SuperGrey\_83 Start: 51298, Stop: 51810, Start Num: 34

Candidate Starts for SuperGrey\_83:

(Start: 34 @51298 has 37 MA's), (41, 51340), (63, 51502), (68, 51544), (80, 51646), (86, 51790),

Gene: SwissCheese\_63 Start: 40640, Stop: 40413, Start Num: 46

Candidate Starts for SwissCheese\_63:

(Start: 46 @40640 has 8 MA's), (55, 40592), (63, 40532),

Gene: Tainan\_10 Start: 2977, Stop: 3420, Start Num: 32

Candidate Starts for Tainan\_10:

(13, 2860), (16, 2890), (21, 2917), (28, 2953), (Start: 32 @2977 has 8 MA's), (45, 3064), (51, 3079), (56, 3106), (58, 3112), (61, 3157), (63, 3169), (69, 3220), (70, 3223), (72, 3253), (79, 3295),

Gene: Tonenili\_21 Start: 6415, Stop: 6846, Start Num: 34

Candidate Starts for Tonenili\_21:

(6, 6136), (10, 6280), (11, 6283), (Start: 34 @6415 has 37 MA's), (38, 6427), (54, 6535), (59, 6553), (60, 6577), (62, 6601), (66, 6631), (67, 6643), (77, 6715), (83, 6769),

Gene: Tortellini\_64 Start: 43747, Stop: 44214, Start Num: 15

Candidate Starts for Tortellini\_64:

(9, 43702), (Start: 15 @43747 has 1 MA's), (29, 43822), (33, 43846), (40, 43888), (81, 44155), (84, 44200),

Gene: Tyke\_9 Start: 2817, Stop: 3251, Start Num: 34

Candidate Starts for Tyke\_9:

(20, 2760), (Start: 34 @2817 has 37 MA's), (45, 2892), (51, 2907), (56, 2934), (58, 2940), (61, 2985), (63, 2997), (69, 3048), (70, 3051), (72, 3081), (79, 3123),