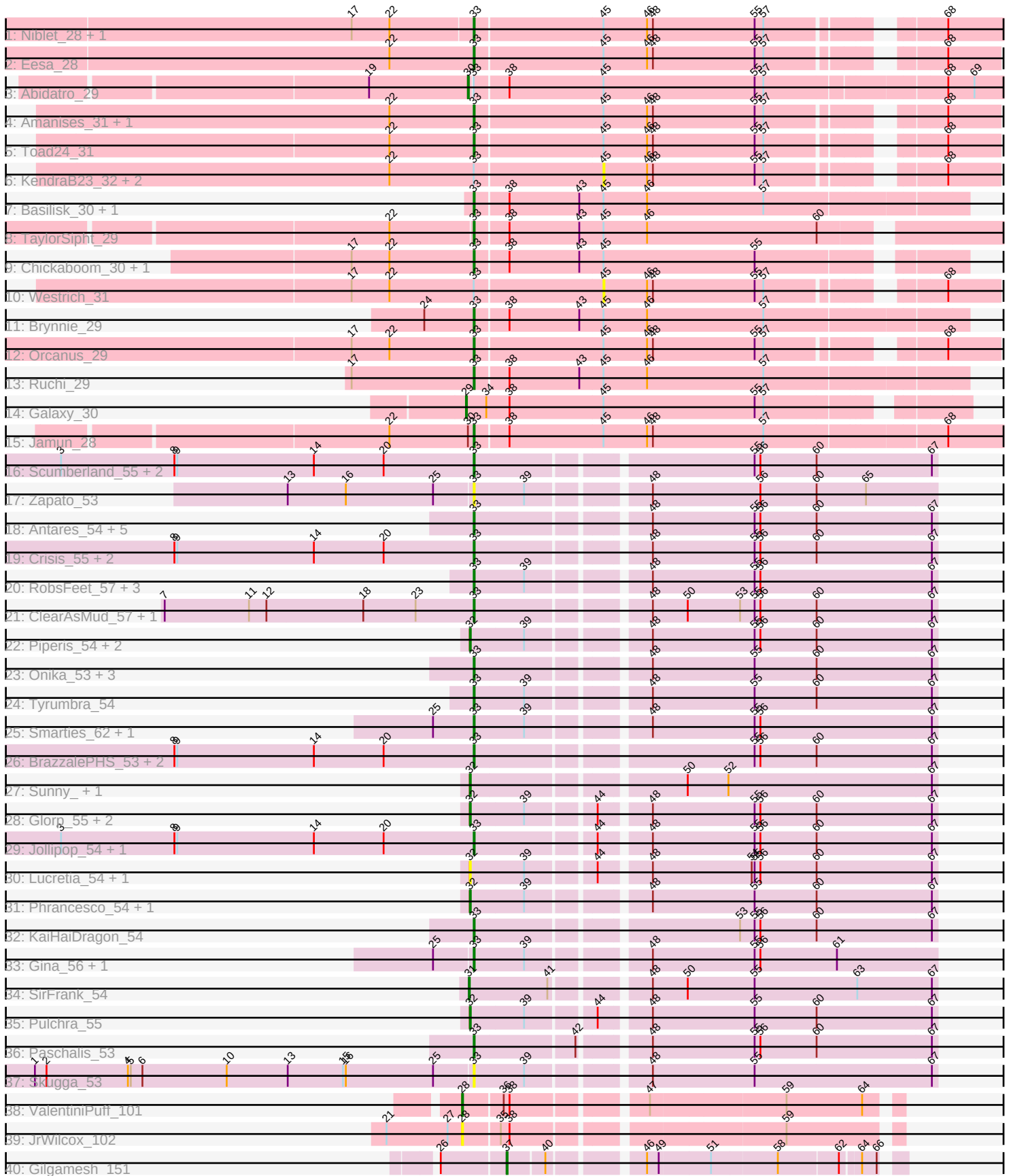


Pham 330791



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 330791 Report

This analysis was run 09/05/26 on database version 662.

Pham number 330791 has 74 members, 11 are drafts.

Phages represented in each track:

- Track 1 : Niblet_28, Chicken_28
- Track 2 : Eesa_28
- Track 3 : Abidatro_29
- Track 4 : Amanises_31, Zixiang_28
- Track 5 : Toad24_31
- Track 6 : KendraB23_32, Gravel_31, Pelletreau_31
- Track 7 : Basilisk_30, Vulpecula_29
- Track 8 : TaylorSipht_29
- Track 9 : Chickaboom_30, WileyE_30
- Track 10 : Westrich_31
- Track 11 : Brynnie_29
- Track 12 : Orcanus_29
- Track 13 : Ruchi_29
- Track 14 : Galaxy_30
- Track 15 : Jamun_28
- Track 16 : Scumberland_55, Cranjis_55, LittleFortune_55
- Track 17 : Zapato_53
- Track 18 : Antares_54, Quhwah_57, Savannah_53, Shotgun_53, BeagleBug_53, PhedwardCullen_53
- Track 19 : Crisis_55, CrazyRich_53, Jefe_54
- Track 20 : RobsFeet_57, Metamorphoo_56, Fireman_56, Shrubaron_56
- Track 21 : ClearAsMud_57, NoodlelyBoi_55
- Track 22 : Piperis_54, Phorgeous_53, Ganandorf_53
- Track 23 : Onika_53, PiperSansNom_54, Hermeonysus_53, Rockwell_53
- Track 24 : Tyrumbra_54
- Track 25 : Smarties_62, Ariadne_62
- Track 26 : BrazzalePHS_53, Ramiel05_53, Kowalski_53
- Track 27 : Sunny_, Merry_
- Track 28 : Glorp_55, Honeyfin_55, Yeti_54
- Track 29 : Jollipop_54, PierreOrion_54
- Track 30 : Lucretia_54, Germa_55
- Track 31 : Phrancesco_54, Busephilis_53
- Track 32 : KaiHaiDragon_54
- Track 33 : Gina_56, Teamocil_56
- Track 34 : SirFrank_54
- Track 35 : Pulchra_55
- Track 36 : Paschalīs_53

- Track 37 : Skugga_53
- Track 38 : ValentiniPuff_101
- Track 39 : JrWilcox_102
- Track 40 : Gilgamesh_151

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 47 of the 63 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Amanises_31, Antares_54, Ariadne_62, Basilisk_30, BeagleBug_53, BrazzalePHS_53, Brynnie_29, Chickaboom_30, Chicken_28, ClearAsMud_57, Cranjis_55, CrazyRich_53, Crisis_55, Eesa_28, Fireman_56, Gina_56, Hermeonysus_53, Jamun_28, Jefe_54, Jollipop_54, KaiHaiDragon_54, Kowalski_53, LittleFortune_55, Metamorphoo_56, Niblet_28, NoodlelyBoi_55, Onika_53, Orcanus_29, Paschalis_53, PhedwardCullen_53, PierreOrion_54, PiperSansNom_54, Quhwah_57, Ramiel05_53, RobsFeet_57, Rockwell_53, Ruchi_29, Savannah_53, Scumberland_55, Shotgun_53, Shrubaron_56, Skugga_53, Smarties_62, TaylorSipht_29, Teamocil_56, Toad24_31, Tyumbra_54, Vulpecula_29, WileyE_30, Zapato_53, Zixiang_28,

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

- Abidatro_29, Gravel_31, KendraB23_32, Pelletreau_31, Westrich_31,

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

- Busephilis_53, Galaxy_30, Ganandorf_53, Germa_55, Gilgamesh_151, Glorp_55, Honeyfin_55, JrWilcox_102, Lucretia_54, Merry_, Phorgeous_53, Phrancesco_54, Piperis_54, Pulchra_55, SirFrank_54, Sunny_, ValentiniPuff_101, Yeti_54,

Summary by start number:

Start 28:

- Found in 2 of 74 (2.7%) of genes in pham
- Manual Annotations of this start: 1 of 63
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JrWilcox_102 (GL), ValentiniPuff_101 (GL),

Start 29:

- Found in 1 of 74 (1.4%) of genes in pham
- Manual Annotations of this start: 1 of 63
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Galaxy_30 (AS1),

Start 30:

- Found in 2 of 74 (2.7%) of genes in pham
- Manual Annotations of this start: 1 of 63
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Abidatro_29 (AS1),

Start 31:

- Found in 1 of 74 (1.4%) of genes in pham
- Manual Annotations of this start: 1 of 63
- Called 100.0% of time when present
- Phage (with cluster) where this start called: SirFrank_54 (EC),

Start 32:

- Found in 13 of 74 (17.6%) of genes in pham
- Manual Annotations of this start: 11 of 63
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Busephilis_53 (EC), Ganandorf_53 (EC), Germa_55 (EC), Glorp_55 (EC), Honeyfin_55 (EC), Lucretia_54 (EC), Merry_ (EC), Phorgeous_53 (EC), Phrancesco_54 (EC), Piperis_54 (EC), Pulchra_55 (EC), Sunny_ (EC), Yeti_54 (EC),

Start 33:

- Found in 56 of 74 (75.7%) of genes in pham
- Manual Annotations of this start: 47 of 63
- Called 91.1% of time when present
- Phage (with cluster) where this start called: Amanises_31 (AS1), Antares_54 (EC), Ariadne_62 (EC), Basilisk_30 (AS1), BeagleBug_53 (EC), BrazzalePHS_53 (EC), Brynnie_29 (AS1), Chickaboom_30 (AS1), Chicken_28 (AS1), ClearAsMud_57 (EC), Cranjis_55 (EC), CrazyRich_53 (EC), Crisis_55 (EC), Eesa_28 (AS1), Fireman_56 (EC), Gina_56 (EC), Hermeonysus_53 (EC), Jamun_28 (AS1), Jefe_54 (EC), Jollipop_54 (EC), KaiHaiDragon_54 (EC), Kowalski_53 (EC), LittleFortune_55 (EC), Metamorphoo_56 (EC), Niblet_28 (AS1), NoodlelyBoi_55 (EC), Onika_53 (EC), Orcanus_29 (AS1), Paschalis_53 (EC), PhedwardCullen_53 (EC), PierreOrion_54 (EC), PiperSansNom_54 (EC), Quhwah_57 (EC), Ramiel05_53 (EC), RobsFeet_57 (EC), Rockwell_53 (EC), Ruchi_29 (AS1), Savannah_53 (EC), Scumberland_55 (EC), Shotgun_53 (EC), Shrubaron_56 (EC), Skugga_53 (EC), Smarties_62 (EC), TaylorSipht_29 (AS1), Teamocil_56 (EC), Toad24_31 (AS1), Tyumbra_54 (EC), Vulpecula_29 (AS1), WileyE_30 (AS1), Zapato_53 (EC), Zixiang_28 (AS1),

Start 37:

- Found in 1 of 74 (1.4%) of genes in pham
- Manual Annotations of this start: 1 of 63
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gilgamesh_151 (singleton),

Start 45:

- Found in 21 of 74 (28.4%) of genes in pham
- No Manual Annotations of this start.
- Called 19.0% of time when present
- Phage (with cluster) where this start called: Gravel_31 (AS1), KendraB23_32 (AS1), Pelletreau_31 (AS1), Westrich_31 (AS1),

Summary by clusters:

There are 4 clusters represented in this pham: AS1, GL, singleton, EC,

Info for manual annotations of cluster AS1:

- Start number 29 was manually annotated 1 time for cluster AS1.

- Start number 30 was manually annotated 1 time for cluster AS1.
- Start number 33 was manually annotated 15 times for cluster AS1.

Info for manual annotations of cluster EC:

- Start number 31 was manually annotated 1 time for cluster EC.
- Start number 32 was manually annotated 11 times for cluster EC.
- Start number 33 was manually annotated 32 times for cluster EC.

Info for manual annotations of cluster GL:

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

Gene Information:

Gene: Abidatro_29 Start: 21393, Stop: 20860, Start Num: 30

Candidate Starts for Abidatro_29:

(19, 21495), (Start: 30 @21393 has 1 MA's), (Start: 33 @21390 has 47 MA's), (38, 21357), (45, 21261), (55, 21105), (57, 21096), (68, 20922), (69, 20895),

Gene: Amanises_31 Start: 22263, Stop: 21769, Start Num: 33

Candidate Starts for Amanises_31:

(22, 22350), (Start: 33 @22263 has 47 MA's), (45, 22134), (46, 22089), (48, 22083), (55, 21978), (57, 21969), (68, 21822),

Gene: Antares_54 Start: 35918, Stop: 36367, Start Num: 33

Candidate Starts for Antares_54:

(Start: 33 @35918 has 47 MA's), (48, 36077), (55, 36182), (56, 36188), (60, 36245), (67, 36362),

Gene: Ariadne_62 Start: 37502, Stop: 37951, Start Num: 33

Candidate Starts for Ariadne_62:

(25, 37460), (Start: 33 @37502 has 47 MA's), (39, 37553), (48, 37661), (55, 37766), (56, 37772), (67, 37946),

Gene: Basilisk_30 Start: 22338, Stop: 21847, Start Num: 33

Candidate Starts for Basilisk_30:

(Start: 33 @22338 has 47 MA's), (38, 22305), (43, 22233), (45, 22209), (46, 22164), (57, 22044),

Gene: BeagleBug_53 Start: 35699, Stop: 36148, Start Num: 33

Candidate Starts for BeagleBug_53:

(Start: 33 @35699 has 47 MA's), (48, 35858), (55, 35963), (56, 35969), (60, 36026), (67, 36143),

Gene: BrazzalePHS_53 Start: 35714, Stop: 36163, Start Num: 33

Candidate Starts for BrazzalePHS_53:

(8, 35405), (9, 35408), (14, 35549), (20, 35621), (Start: 33 @35714 has 47 MA's), (55, 35978), (56, 35984), (60, 36041), (67, 36158),

Gene: Brynnie_29 Start: 22216, Stop: 21725, Start Num: 33

Candidate Starts for Brynnie_29:

(24, 22267), (Start: 33 @22216 has 47 MA's), (38, 22183), (43, 22111), (45, 22087), (46, 22042), (57, 21922),

Gene: Busephilis_53 Start: 35622, Stop: 36074, Start Num: 32

Candidate Starts for Busephilis_53:

(Start: 32 @35622 has 11 MA's), (39, 35676), (48, 35784), (55, 35889), (60, 35952), (67, 36069),

Gene: Chickaboom_30 Start: 21353, Stop: 20883, Start Num: 33

Candidate Starts for Chickaboom_30:

(17, 21479), (22, 21440), (Start: 33 @21353 has 47 MA's), (38, 21320), (43, 21248), (45, 21224), (55, 21068),

Gene: Chicken_28 Start: 21668, Stop: 21147, Start Num: 33

Candidate Starts for Chicken_28:

(17, 21791), (22, 21752), (Start: 33 @21668 has 47 MA's), (45, 21539), (46, 21494), (48, 21488), (55, 21383), (57, 21374), (68, 21227),

Gene: ClearAsMud_57 Start: 36175, Stop: 36624, Start Num: 33

Candidate Starts for ClearAsMud_57:

(7, 35857), (11, 35944), (12, 35962), (18, 36061), (23, 36115), (Start: 33 @36175 has 47 MA's), (48, 36334), (50, 36370), (53, 36424), (55, 36439), (56, 36445), (60, 36502), (67, 36619),

Gene: Cranjis_55 Start: 35873, Stop: 36322, Start Num: 33

Candidate Starts for Cranjis_55:

(3, 35447), (8, 35564), (9, 35567), (14, 35708), (20, 35780), (Start: 33 @35873 has 47 MA's), (55, 36137), (56, 36143), (60, 36200), (67, 36317),

Gene: CrazyRich_53 Start: 35682, Stop: 36131, Start Num: 33

Candidate Starts for CrazyRich_53:

(8, 35373), (9, 35376), (14, 35517), (20, 35589), (Start: 33 @35682 has 47 MA's), (48, 35841), (55, 35946), (56, 35952), (60, 36009), (67, 36126),

Gene: Crisis_55 Start: 35673, Stop: 36122, Start Num: 33

Candidate Starts for Crisis_55:

(8, 35364), (9, 35367), (14, 35508), (20, 35580), (Start: 33 @35673 has 47 MA's), (48, 35832), (55, 35937), (56, 35943), (60, 36000), (67, 36117),

Gene: Eesa_28 Start: 22106, Stop: 21612, Start Num: 33

Candidate Starts for Eesa_28:

(22, 22193), (Start: 33 @22106 has 47 MA's), (45, 21977), (46, 21932), (48, 21926), (55, 21821), (57, 21812), (68, 21665),

Gene: Fireman_56 Start: 37569, Stop: 38018, Start Num: 33

Candidate Starts for Fireman_56:

(Start: 33 @37569 has 47 MA's), (39, 37620), (48, 37728), (55, 37833), (56, 37839), (67, 38013),

Gene: Galaxy_30 Start: 21976, Stop: 21491, Start Num: 29

Candidate Starts for Galaxy_30:

(Start: 29 @21976 has 1 MA's), (34, 21955), (38, 21931), (45, 21835), (55, 21679), (57, 21670),

Gene: Ganandorf_53 Start: 35703, Stop: 36155, Start Num: 32

Candidate Starts for Ganandorf_53:

(Start: 32 @35703 has 11 MA's), (39, 35757), (48, 35865), (55, 35970), (56, 35976), (60, 36033), (67, 36150),

Gene: Germa_55 Start: 35532, Stop: 35984, Start Num: 32

Candidate Starts for Germa_55:

(Start: 32 @35532 has 11 MA's), (39, 35586), (44, 35649), (48, 35694), (54, 35796), (55, 35799), (56, 35805), (60, 35862), (67, 35979),

Gene: Gilgamesh_151 Start: 125936, Stop: 126292, Start Num: 37

Candidate Starts for Gilgamesh_151:

(26, 125873), (Start: 37 @125936 has 1 MA's), (40, 125972), (46, 126053), (49, 126065), (51, 126116), (58, 126182), (62, 126242), (64, 126260), (66, 126275),

Gene: Gina_56 Start: 35677, Stop: 36126, Start Num: 33

Candidate Starts for Gina_56:

(25, 35638), (Start: 33 @35677 has 47 MA's), (39, 35728), (48, 35836), (55, 35941), (56, 35947), (61, 36025),

Gene: Glorp_55 Start: 35704, Stop: 36156, Start Num: 32

Candidate Starts for Glorp_55:

(Start: 32 @35704 has 11 MA's), (39, 35758), (44, 35821), (48, 35866), (55, 35971), (56, 35977), (60, 36034), (67, 36151),

Gene: Gravel_31 Start: 21946, Stop: 21581, Start Num: 45

Candidate Starts for Gravel_31:

(22, 22162), (Start: 33 @22075 has 47 MA's), (45, 21946), (46, 21901), (48, 21895), (55, 21790), (57, 21781), (68, 21634),

Gene: Hermeonysus_53 Start: 35602, Stop: 36051, Start Num: 33

Candidate Starts for Hermeonysus_53:

(Start: 33 @35602 has 47 MA's), (48, 35761), (55, 35866), (60, 35929), (67, 36046),

Gene: Honeyfin_55 Start: 35891, Stop: 36343, Start Num: 32

Candidate Starts for Honeyfin_55:

(Start: 32 @35891 has 11 MA's), (39, 35945), (44, 36008), (48, 36053), (55, 36158), (56, 36164), (60, 36221), (67, 36338),

Gene: Jamun_28 Start: 21237, Stop: 20692, Start Num: 33

Candidate Starts for Jamun_28:

(22, 21321), (Start: 30 @21240 has 1 MA's), (Start: 33 @21237 has 47 MA's), (38, 21204), (45, 21108), (46, 21063), (48, 21057), (57, 20943), (68, 20766),

Gene: Jefe_54 Start: 35660, Stop: 36109, Start Num: 33

Candidate Starts for Jefe_54:

(8, 35351), (9, 35354), (14, 35495), (20, 35567), (Start: 33 @35660 has 47 MA's), (48, 35819), (55, 35924), (56, 35930), (60, 35987), (67, 36104),

Gene: Jollipop_54 Start: 35999, Stop: 36448, Start Num: 33

Candidate Starts for Jollipop_54:

(3, 35573), (8, 35690), (9, 35693), (14, 35834), (20, 35906), (Start: 33 @35999 has 47 MA's), (44, 36113), (48, 36158), (55, 36263), (56, 36269), (60, 36326), (67, 36443),

Gene: JrWilcox_102 Start: 57042, Stop: 57449, Start Num: 28

Candidate Starts for JrWilcox_102:

(21, 56964), (27, 57027), (Start: 28 @57042 has 1 MA's), (35, 57078), (38, 57087), (59, 57342),

Gene: KaiHaiDragon_54 Start: 35596, Stop: 36045, Start Num: 33

Candidate Starts for KaiHaiDragon_54:

(Start: 33 @35596 has 47 MA's), (53, 35845), (55, 35860), (56, 35866), (60, 35923), (67, 36040),

Gene: KendraB23_32 Start: 22134, Stop: 21769, Start Num: 45

Candidate Starts for KendraB23_32:

(22, 22350), (Start: 33 @22263 has 47 MA's), (45, 22134), (46, 22089), (48, 22083), (55, 21978), (57, 21969), (68, 21822),

Gene: Kowalski_53 Start: 35709, Stop: 36158, Start Num: 33

Candidate Starts for Kowalski_53:

(8, 35400), (9, 35403), (14, 35544), (20, 35616), (Start: 33 @35709 has 47 MA's), (55, 35973), (56, 35979), (60, 36036), (67, 36153),

Gene: LittleFortune_55 Start: 35965, Stop: 36414, Start Num: 33

Candidate Starts for LittleFortune_55:

(3, 35539), (8, 35656), (9, 35659), (14, 35800), (20, 35872), (Start: 33 @35965 has 47 MA's), (55, 36229), (56, 36235), (60, 36292), (67, 36409),

Gene: Lucretia_54 Start: 35620, Stop: 36072, Start Num: 32

Candidate Starts for Lucretia_54:

(Start: 32 @35620 has 11 MA's), (39, 35674), (44, 35737), (48, 35782), (54, 35884), (55, 35887), (56, 35893), (60, 35950), (67, 36067),

Gene: Merry_ Start: 37459, Stop: 37911, Start Num: 32

Candidate Starts for Merry_:

(Start: 32 @37459 has 11 MA's), (50, 37657), (52, 37699), (67, 37906),

Gene: Metamorphoo_56 Start: 36831, Stop: 37280, Start Num: 33

Candidate Starts for Metamorphoo_56:

(Start: 33 @36831 has 47 MA's), (39, 36882), (48, 36990), (55, 37095), (56, 37101), (67, 37275),

Gene: Niblet_28 Start: 21668, Stop: 21147, Start Num: 33

Candidate Starts for Niblet_28:

(17, 21791), (22, 21752), (Start: 33 @21668 has 47 MA's), (45, 21539), (46, 21494), (48, 21488), (55, 21383), (57, 21374), (68, 21227),

Gene: NoodlelyBoi_55 Start: 36387, Stop: 36836, Start Num: 33

Candidate Starts for NoodlelyBoi_55:

(7, 36069), (11, 36156), (12, 36174), (18, 36273), (23, 36327), (Start: 33 @36387 has 47 MA's), (48, 36546), (50, 36582), (53, 36636), (55, 36651), (56, 36657), (60, 36714), (67, 36831),

Gene: Onika_53 Start: 35684, Stop: 36133, Start Num: 33

Candidate Starts for Onika_53:

(Start: 33 @35684 has 47 MA's), (48, 35843), (55, 35948), (60, 36011), (67, 36128),

Gene: Orcanus_29 Start: 21876, Stop: 21382, Start Num: 33

Candidate Starts for Orcanus_29:

(17, 22002), (22, 21963), (Start: 33 @21876 has 47 MA's), (45, 21747), (46, 21702), (48, 21696), (55, 21591), (57, 21582), (68, 21435),

Gene: Paschalis_53 Start: 35691, Stop: 36140, Start Num: 33

Candidate Starts for Paschalis_53:

(Start: 33 @35691 has 47 MA's), (42, 35790), (48, 35850), (55, 35955), (56, 35961), (60, 36018), (67, 36135),

Gene: Pelletreau_31 Start: 21946, Stop: 21581, Start Num: 45

Candidate Starts for Pelletreau_31:

(22, 22162), (Start: 33 @22075 has 47 MA's), (45, 21946), (46, 21901), (48, 21895), (55, 21790), (57, 21781), (68, 21634),

Gene: PhedwardCullen_53 Start: 35442, Stop: 35891, Start Num: 33

Candidate Starts for PhedwardCullen_53:

(Start: 33 @35442 has 47 MA's), (48, 35601), (55, 35706), (56, 35712), (60, 35769), (67, 35886),

Gene: Phorgeous_53 Start: 35522, Stop: 35974, Start Num: 32

Candidate Starts for Phorgeous_53:

(Start: 32 @35522 has 11 MA's), (39, 35576), (48, 35684), (55, 35789), (56, 35795), (60, 35852), (67, 35969),

Gene: Phrancesco_54 Start: 35812, Stop: 36264, Start Num: 32

Candidate Starts for Phrancesco_54:

(Start: 32 @35812 has 11 MA's), (39, 35866), (48, 35974), (55, 36079), (60, 36142), (67, 36259),

Gene: PierreOrion_54 Start: 35858, Stop: 36307, Start Num: 33

Candidate Starts for PierreOrion_54:

(3, 35432), (8, 35549), (9, 35552), (14, 35693), (20, 35765), (Start: 33 @35858 has 47 MA's), (44, 35972), (48, 36017), (55, 36122), (56, 36128), (60, 36185), (67, 36302),

Gene: PiperSansNom_54 Start: 35998, Stop: 36447, Start Num: 33

Candidate Starts for PiperSansNom_54:

(Start: 33 @35998 has 47 MA's), (48, 36157), (55, 36262), (60, 36325), (67, 36442),

Gene: Piperis_54 Start: 35645, Stop: 36097, Start Num: 32

Candidate Starts for Piperis_54:

(Start: 32 @35645 has 11 MA's), (39, 35699), (48, 35807), (55, 35912), (56, 35918), (60, 35975), (67, 36092),

Gene: Pulchra_55 Start: 36042, Stop: 36494, Start Num: 32

Candidate Starts for Pulchra_55:

(Start: 32 @36042 has 11 MA's), (39, 36096), (44, 36159), (48, 36204), (55, 36309), (60, 36372), (67, 36489),

Gene: Quhwah_57 Start: 36306, Stop: 36755, Start Num: 33

Candidate Starts for Quhwah_57:

(Start: 33 @36306 has 47 MA's), (48, 36465), (55, 36570), (56, 36576), (60, 36633), (67, 36750),

Gene: Ramiel05_53 Start: 35709, Stop: 36158, Start Num: 33

Candidate Starts for Ramiel05_53:

(8, 35400), (9, 35403), (14, 35544), (20, 35616), (Start: 33 @35709 has 47 MA's), (55, 35973), (56, 35979), (60, 36036), (67, 36153),

Gene: RobsFeet_57 Start: 37130, Stop: 37579, Start Num: 33

Candidate Starts for RobsFeet_57:

(Start: 33 @37130 has 47 MA's), (39, 37181), (48, 37289), (55, 37394), (56, 37400), (67, 37574),

Gene: Rockwell_53 Start: 35709, Stop: 36158, Start Num: 33

Candidate Starts for Rockwell_53:

(Start: 33 @35709 has 47 MA's), (48, 35868), (55, 35973), (60, 36036), (67, 36153),

Gene: Ruchi_29 Start: 22284, Stop: 21793, Start Num: 33

Candidate Starts for Ruchi_29:

(17, 22410), (Start: 33 @22284 has 47 MA's), (38, 22251), (43, 22179), (45, 22155), (46, 22110), (57, 21990),

Gene: Savannah_53 Start: 35736, Stop: 36185, Start Num: 33

Candidate Starts for Savannah_53:

(Start: 33 @35736 has 47 MA's), (48, 35895), (55, 36000), (56, 36006), (60, 36063), (67, 36180),

Gene: Scumberland_55 Start: 35931, Stop: 36380, Start Num: 33

Candidate Starts for Scumberland_55:

(3, 35505), (8, 35622), (9, 35625), (14, 35766), (20, 35838), (Start: 33 @35931 has 47 MA's), (55, 36195), (56, 36201), (60, 36258), (67, 36375),

Gene: Shotgun_53 Start: 35535, Stop: 35984, Start Num: 33

Candidate Starts for Shotgun_53:

(Start: 33 @35535 has 47 MA's), (48, 35694), (55, 35799), (56, 35805), (60, 35862), (67, 35979),

Gene: Shrubaron_56 Start: 36743, Stop: 37192, Start Num: 33

Candidate Starts for Shrubaron_56:

(Start: 33 @36743 has 47 MA's), (39, 36794), (48, 36902), (55, 37007), (56, 37013), (67, 37187),

Gene: SirFrank_54 Start: 35866, Stop: 36318, Start Num: 31

Candidate Starts for SirFrank_54:

(Start: 31 @35866 has 1 MA's), (41, 35944), (48, 36028), (50, 36064), (55, 36133), (63, 36238), (67, 36313),

Gene: Skugga_53 Start: 35695, Stop: 36144, Start Num: 33

Candidate Starts for Skugga_53:

(1, 35245), (2, 35257), (4, 35341), (5, 35344), (6, 35356), (10, 35443), (13, 35506), (15, 35563), (16, 35566), (25, 35656), (Start: 33 @35695 has 47 MA's), (39, 35746), (48, 35854), (55, 35959), (67, 36139),

Gene: Smarties_62 Start: 37502, Stop: 37951, Start Num: 33

Candidate Starts for Smarties_62:

(25, 37460), (Start: 33 @37502 has 47 MA's), (39, 37553), (48, 37661), (55, 37766), (56, 37772), (67, 37946),

Gene: Sunny_ Start: 37461, Stop: 37913, Start Num: 32

Candidate Starts for Sunny_:

(Start: 32 @37461 has 11 MA's), (50, 37659), (52, 37701), (67, 37908),

Gene: TaylorSipht_29 Start: 21289, Stop: 20720, Start Num: 33

Candidate Starts for TaylorSipht_29:

(22, 21373), (Start: 33 @21289 has 47 MA's), (38, 21256), (43, 21184), (45, 21160), (46, 21115), (60, 20941),

Gene: Teamocil_56 Start: 35776, Stop: 36225, Start Num: 33

Candidate Starts for Teamocil_56:

(25, 35737), (Start: 33 @35776 has 47 MA's), (39, 35827), (48, 35935), (55, 36040), (56, 36046), (61, 36124),

Gene: Toad24_31 Start: 22325, Stop: 21831, Start Num: 33

Candidate Starts for Toad24_31:

(22, 22412), (Start: 33 @22325 has 47 MA's), (45, 22196), (46, 22151), (48, 22145), (55, 22040), (57, 22031), (68, 21884),

Gene: Tyrumbra_54 Start: 36909, Stop: 37358, Start Num: 33

Candidate Starts for Tyrumbra_54:

(Start: 33 @36909 has 47 MA's), (39, 36960), (48, 37068), (55, 37173), (60, 37236), (67, 37353),

Gene: ValentiniPuff_101 Start: 57583, Stop: 57990, Start Num: 28

Candidate Starts for ValentiniPuff_101:

(Start: 28 @57583 has 1 MA's), (36, 57622), (38, 57628), (47, 57748), (59, 57883), (64, 57961),

Gene: Vulpecula_29 Start: 21960, Stop: 21436, Start Num: 33

Candidate Starts for Vulpecula_29:

(Start: 33 @21960 has 47 MA's), (38, 21927), (43, 21855), (45, 21831), (46, 21786), (57, 21666),

Gene: Westrich_31 Start: 21873, Stop: 21508, Start Num: 45

Candidate Starts for Westrich_31:

(17, 22128), (22, 22089), (Start: 33 @22002 has 47 MA's), (45, 21873), (46, 21828), (48, 21822), (55, 21717), (57, 21708), (68, 21561),

Gene: WileyE_30 Start: 21353, Stop: 20883, Start Num: 33

Candidate Starts for WileyE_30:

(17, 21479), (22, 21440), (Start: 33 @21353 has 47 MA's), (38, 21320), (43, 21248), (45, 21224), (55, 21068),

Gene: Yeti_54 Start: 35678, Stop: 36130, Start Num: 32

Candidate Starts for Yeti_54:

(Start: 32 @35678 has 11 MA's), (39, 35732), (44, 35795), (48, 35840), (55, 35945), (56, 35951), (60, 36008), (67, 36125),

Gene: Zapato_53 Start: 35894, Stop: 36343, Start Num: 33

Candidate Starts for Zapato_53:

(13, 35705), (16, 35765), (25, 35855), (Start: 33 @35894 has 47 MA's), (39, 35945), (48, 36053), (56, 36164), (60, 36221), (65, 36272),

Gene: Zixiang_28 Start: 21681, Stop: 21187, Start Num: 33

Candidate Starts for Zixiang_28:

(22, 21768), (Start: 33 @21681 has 47 MA's), (45, 21552), (46, 21507), (48, 21501), (55, 21396), (57, 21387), (68, 21240),