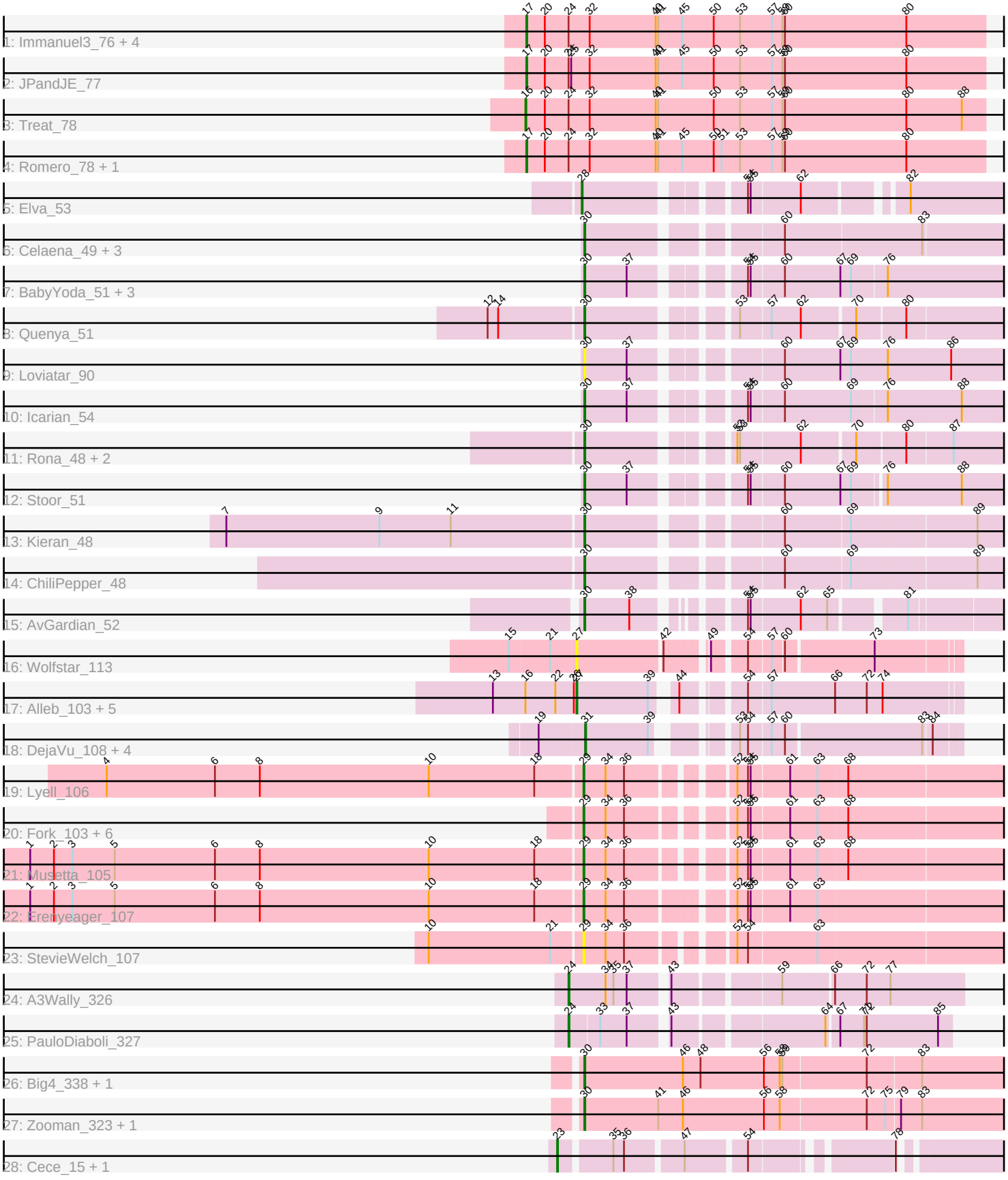
Pham 171488


1: Immanuel3_76 + 4
2: JPandJE_77
3: Treat_78
4: Romero_78 + 1
5: Elva_53
6: Celaena_49 + 3
7: BabyYoda_51 + 3
8: Quenya_51
9: Loviatar_90
10: Icarian_54
11: Rona_48 + 2
12: Stoor_51
13: Kieran_48
14: ChiliPepper_48
15: AvGardian_52
16: Wolfstar_113
17: Alleb_103 + 5
18: DejaVu_108 + 4
19: Lyell_106
20: Fork_103 + 6
21: Musetta_105
22: Erenyeager_107
23: StevieWelch_107
24: A3Wally_326
25: PauloDiaboli_327
26: Big4_338 + 1
27: Zooman_323 + 1
28: Cece_15 + 1

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 171488 Report

This analysis was run 07/10/24 on database version 566.

Pham number 171488 has 59 members, 5 are drafts.

Phages represented in each track:
• Track 1 : Immanuel3_76, Percastrophe_78, ZooBear_78, ToriToki_78, HaugeAnator_78
• Track 2 : JPandJE_77
• Track 3 : Treat_78
• Track 4 : Romero_78, Olicious_78
• Track 5 : Elva_53
• Track 6 : Celaena_49, Bachaco_50, FlameThrower_48, Katzastrophic_50
• Track 7 : BabyYoda_51, Stromboli_51, DirtyBubble_50, SanaSana_53
• Track 8 : Quenya_51
• Track 9 : Loviatar_90
• Track 10 : Icarian_54
• Track 11 : Rona_48, Sharkboy_49, Dismas_48
• Track 12 : Stoor_51
• Track 13 : Kieran_48
• Track 14 : ChiliPepper_48
• Track 15 : AvGardian_52
• Track 16 : Wolfstar_113
• Track 17 : Alleb_103, OlinDD_107, Platte_106, Tandem_107, Hortus1_107, Pioneer3_107
• Track 18 : DejaVu_108, Pavlo_108, PhillyPhilly_105, Roman_109, Hubbs_107
• Track 19 : Lyell_106
• Track 20 : Fork_103, Yuma_105, Welcome_109, DustyDino_110, ASegato_105, Necrophoxinus_109, RunningBrook_109
• Track 21 : Musetta_105
• Track 22 : Erenyeager_107
• Track 23 : StevieWelch_107
• Track 24 : A3Wally_326
• Track 25 : PauloDiaboli_327
• Track 26 : Big4_338, Big4_12
• Track 27 : Zooman_323, Zooman_10
• Track 28 : Cece_15, Cece_317

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

The start number called the most often in the published annotations is 30, it was called in 20 of the 54 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• AvGardian_52, BabyYoda_51, Bachaco_50, Big4_12, Big4_338, Celaena_49, ChiliPepper_48, DirtyBubble_50, Dismas_48, FlameThrower_48, Icarian_54, Katzastrophic_50, Kieran_48, Loviatar_90, Quenya_51, Rona_48, SanaSana_53, Sharkboy_49, Stoor_51, Stromboli_51, Zooman_10, Zooman_323,

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

Genes that do not have the "Most Annotated" start:
• A3Wally_326, ASegato_105, Alleb_103, Cece_15, Cece_317, DejaVu_108, DustyDino_110, Elva_53, Erenyeager_107, Fork_103, HaugeAnator_78, Hortus1_107, Hubbs_107, Immanuel3_76, JPandJE_77, Lyell_106, Musetta_105, Necrophoxinus_109, Olicious_78, OlinDD_107, PauloDiaboli_327, Pavlo_108, Percastrophe_78, PhillyPhilly_105, Pioneer3_107, Platte_106, Roman_109, Romero_78, RunningBrook_109, StevieWelch_107, Tandem_107, ToriToki_78, Treat_78, Welcome_109, Wolfstar_113, Yuma_105, ZooBear_78,

Summary by start number:

Start 16:
• Found in 7 of 59 (11.9%) of genes in pham
• Manual Annotations of this start: 1 of 54
• Called 14.3% of time when present
• Phage (with cluster) where this start called: Treat_78 (BF),

Start 17:
• Found in 8 of 59 (13.6%) of genes in pham
• Manual Annotations of this start: 8 of 54
• Called 100.0% of time when present
• Phage (with cluster) where this start called: HaugeAnator_78 (BF), Immanuel3_76 (BF), JPandJE_77 (BF), Olicious_78 (BF), Percastrophe_78 (BF), Romero_78 (BF), ToriToki_78 (BF), ZooBear_78 (BF),

Start 23:
• Found in 2 of 59 (3.4%) of genes in pham
• Manual Annotations of this start: 2 of 54
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Cece_15 (GD3), Cece_317 (GD3),

Start 24:
• Found in 11 of 59 (18.6%) of genes in pham
• Manual Annotations of this start: 2 of 54
• Called 18.2% of time when present
• Phage (with cluster) where this start called: A3Wally_326 (GD1), PauloDiaboli_327 (GD1),

Start 27:
• Found in 7 of 59 (11.9%) of genes in pham
• Manual Annotations of this start: 6 of 54

• Called 100.0% of time when present
• Phage (with cluster) where this start called: Alleb_103 (ED1), Hortus1_107 (ED1), OlinDD_107 (ED1), Pioneer3_107 (ED1), Platte_106 (ED1), Tandem_107 (ED1), Wolfstar_113 (ED),

Start 28:
• Found in 1 of 59 (1.7%) of genes in pham
• Manual Annotations of this start: 1 of 54
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Elva_53 (EB),

Start 29:
• Found in 11 of 59 (18.6%) of genes in pham
• Manual Annotations of this start: 9 of 54
• Called 100.0% of time when present
• Phage (with cluster) where this start called: ASegato_105 (ED2), DustyDino_110 (ED2), Erenyeager_107 (ED2), Fork_103 (ED2), Lyell_106 (ED2), Musetta_105 (ED2), Necrophoxinus_109 (ED2), RunningBrook_109 (ED2), StevieWelch_107 (ED2), Welcome_109 (ED2), Yuma_105 (ED2),

Start 30:
• Found in 22 of 59 (37.3%) of genes in pham
• Manual Annotations of this start: 20 of 54
• Called 100.0% of time when present
• Phage (with cluster) where this start called: AvGardian_52 (EB), BabyYoda_51 (EB), Bachaco_50 (EB), Big4_12 (GD2), Big4_338 (GD2), Celaena_49 (EB), ChiliPepper_48 (EB), DirtyBubble_50 (EB), Dismas_48 (EB), FlameThrower_48 (EB), Icarian_54 (EB), Katzastrophic_50 (EB), Kieran_48 (EB), Loviatar_90 (EB), Quenya_51 (EB), Rona_48 (EB), SanaSana_53 (EB), Sharkboy_49 (EB), Stoor_51 (EB), Stromboli_51 (EB), Zooman_10 (GD2), Zooman_323 (GD2),

Start 31:
• Found in 5 of 59 (8.5%) of genes in pham
• Manual Annotations of this start: 5 of 54
• Called 100.0% of time when present
• Phage (with cluster) where this start called: DejaVu_108 (ED1), Hubbs_107 (ED1), Pavlo_108 (ED1), PhillyPhilly_105 (ED1), Roman_109 (ED1),

Summary by clusters:

There are 8 clusters represented in this pham: GD1, GD2, GD3, ED, BF, EB, ED2, ED1,

Info for manual annotations of cluster BF:
•Start number 16 was manually annotated 1 time for cluster BF.
•Start number 17 was manually annotated 8 times for cluster BF.

Info for manual annotations of cluster EB:
•Start number 28 was manually annotated 1 time for cluster EB.
•Start number 30 was manually annotated 16 times for cluster EB.

Info for manual annotations of cluster ED1:

•Start number 27 was manually annotated 6 times for cluster ED1.
•Start number 31 was manually annotated 5 times for cluster ED1.

Info for manual annotations of cluster ED2:
•Start number 29 was manually annotated 9 times for cluster ED2.

Info for manual annotations of cluster GD1:
•Start number 24 was manually annotated 2 times for cluster GD1.

Info for manual annotations of cluster GD2:
•Start number 30 was manually annotated 4 times for cluster GD2.

Info for manual annotations of cluster GD3:
•Start number 23 was manually annotated 2 times for cluster GD3.

Gene Information:

Gene: A3Wally_326 Start: 170993, Stop: 171403, Start Num: 24
Candidate Starts for A3Wally_326:
(Start: 24 @170993 has 2 MA's), (34, 171035), (35, 171044), (37, 171059), (43, 171095), (59, 171203), (66, 171257), (72, 171293), (77, 171320),

Gene: ASegato_105 Start: 56034, Stop: 55597, Start Num: 29
Candidate Starts for ASegato_105:
(Start: 29 @56034 has 9 MA's), (34, 56010), (36, 55989), (52, 55893), (54, 55881), (55, 55878), (61, 55836), (63, 55806), (68, 55773),

Gene: Alleb_103 Start: 57500, Stop: 57114, Start Num: 27
Candidate Starts for Alleb_103:
(13, 57593), (Start: 16 @57557 has 1 MA's), (22, 57524), (26, 57503), (Start: 27 @57500 has 6 MA's), (39, 57419), (44, 57401), (54, 57347), (57, 57323), (66, 57251), (72, 57215), (74, 57197),

Gene: AvGardian_52 Start: 34737, Stop: 35147, Start Num: 30
Candidate Starts for AvGardian_52:
(Start: 30 @34737 has 20 MA's), (38, 34788), (54, 34878), (55, 34881), (62, 34935), (65, 34965), (81, 35037),

Gene: BabyYoda_51 Start: 35131, Stop: 35568, Start Num: 30
Candidate Starts for BabyYoda_51:
(Start: 30 @35131 has 20 MA's), (37, 35179), (54, 35278), (55, 35281), (60, 35317), (67, 35380), (69, 35392), (76, 35431),

Gene: Bachaco_50 Start: 35861, Stop: 36301, Start Num: 30
Candidate Starts for Bachaco_50:
(Start: 30 @35861 has 20 MA's), (60, 36050), (83, 36200),

Gene: Big4_338 Start: 180229, Stop: 180705, Start Num: 30
Candidate Starts for Big4_338:
(Start: 30 @180229 has 20 MA's), (46, 180340), (48, 180358), (56, 180427), (58, 180445), (59, 180448), (72, 180541), (83, 180601),

Gene: Big4_12 Start: 5535, Stop: 6011, Start Num: 30
Candidate Starts for Big4_12:
(Start: 30 @5535 has 20 MA's), (46, 5646), (48, 5664), (56, 5733), (58, 5751), (59, 5754), (72, 5847), (83, 5907),

Gene: Cece_15 Start: 5418, Stop: 5840, Start Num: 23
Candidate Starts for Cece_15:
(Start: 23 @5418 has 2 MA's), (35, 5472), (36, 5484), (47, 5544), (54, 5607), (78, 5742),

Gene: Cece_317 Start: 173852, Stop: 174274, Start Num: 23
Candidate Starts for Cece_317:
(Start: 23 @173852 has 2 MA's), (35, 173906), (36, 173918), (47, 173978), (54, 174041), (78, 174176),

Gene: Celaena_49 Start: 35623, Stop: 36063, Start Num: 30
Candidate Starts for Celaena_49:
(Start: 30 @35623 has 20 MA's), (60, 35812), (83, 35962),

Gene: ChiliPepper_48 Start: 34921, Stop: 35364, Start Num: 30
Candidate Starts for ChiliPepper_48:
(Start: 30 @34921 has 20 MA's), (60, 35110), (69, 35182), (89, 35320),

Gene: DejaVu_108 Start: 57205, Stop: 56840, Start Num: 31
Candidate Starts for DejaVu_108:
(19, 57256), (Start: 31 @57205 has 5 MA's), (39, 57136), (53, 57076), (54, 57067), (57, 57043), (60, 57028), (83, 56878), (84, 56869),

Gene: DirtyBubble_50 Start: 34799, Stop: 35236, Start Num: 30
Candidate Starts for DirtyBubble_50:
(Start: 30 @34799 has 20 MA's), (37, 34847), (54, 34946), (55, 34949), (60, 34985), (67, 35048), (69, 35060), (76, 35099),

Gene: Dismas_48 Start: 34843, Stop: 35286, Start Num: 30
Candidate Starts for Dismas_48:
(Start: 30 @34843 has 20 MA's), (52, 34978), (53, 34981), (62, 35047), (70, 35104), (80, 35155), (87, 35206),

Gene: DustyDino_110 Start: 56887, Stop: 56450, Start Num: 29
Candidate Starts for DustyDino_110:
(Start: 29 @56887 has 9 MA's), (34, 56863), (36, 56842), (52, 56746), (54, 56734), (55, 56731), (61, 56689), (63, 56659), (68, 56626),

Gene: Elva_53 Start: 35217, Stop: 35639, Start Num: 28
Candidate Starts for Elva_53:
(Start: 28 @35217 has 1 MA's), (54, 35367), (55, 35370), (62, 35424), (82, 35523),

Gene: Erenyeager_107 Start: 55997, Stop: 55551, Start Num: 29
Candidate Starts for Erenyeager_107:
(1, 56621), (2, 56594), (3, 56573), (5, 56525), (6, 56411), (8, 56360), (10, 56168), (18, 56048), (Start: 29 @55997 has 9 MA's), (34, 55973), (36, 55952), (52, 55847), (54, 55835), (55, 55832), (61, 55790), (63, 55760),

Gene: FlameThrower_48 Start: 34660, Stop: 35100, Start Num: 30

Candidate Starts for FlameThrower_48:
(Start: 30 @34660 has 20 MA's), (60, 34849), (83, 34999),

Gene: Fork_103 Start: 55912, Stop: 55475, Start Num: 29
Candidate Starts for Fork_103:
(Start: 29 @55912 has 9 MA's), (34, 55888), (36, 55867), (52, 55771), (54, 55759), (55, 55756), (61, 55714), (63, 55684), (68, 55651),

Gene: HaugeAnator_78 Start: 40177, Stop: 39656, Start Num: 17
Candidate Starts for HaugeAnator_78:
(Start: 17 @40177 has 8 MA's), (20, 40156), (Start: 24 @40129 has 2 MA's), (32, 40105), (40, 40030), (41, 40027), (45, 40000), (50, 39964), (53, 39934), (57, 39898), (59, 39886), (60, 39883), (80, 39745),

Gene: Hortus1_107 Start: 58256, Stop: 57870, Start Num: 27
Candidate Starts for Hortus1_107:
(13, 58349), (Start: 16 @58313 has 1 MA's), (22, 58280), (26, 58259), (Start: 27 @58256 has 6 MA's), (39, 58175), (44, 58157), (54, 58103), (57, 58079), (66, 58007), (72, 57971), (74, 57953),

Gene: Hubbs_107 Start: 57469, Stop: 57104, Start Num: 31
Candidate Starts for Hubbs_107:
(19, 57520), (Start: 31 @57469 has 5 MA's), (39, 57400), (53, 57340), (54, 57331), (57, 57307), (60, 57292), (83, 57142), (84, 57133),

Gene: Icarian_54 Start: 35804, Stop: 36241, Start Num: 30
Candidate Starts for Icarian_54:
(Start: 30 @35804 has 20 MA's), (37, 35852), (54, 35951), (55, 35954), (60, 35990), (69, 36065), (76, 36104), (88, 36185),

Gene: Immanuel3_76 Start: 40182, Stop: 39661, Start Num: 17
Candidate Starts for Immanuel3_76:
(Start: 17 @40182 has 8 MA's), (20, 40161), (Start: 24 @40134 has 2 MA's), (32, 40110), (40, 40035), (41, 40032), (45, 40005), (50, 39969), (53, 39939), (57, 39903), (59, 39891), (60, 39888), (80, 39750),

Gene: JPandJE_77 Start: 40528, Stop: 40007, Start Num: 17
Candidate Starts for JPandJE_77:
(Start: 17 @40528 has 8 MA's), (20, 40507), (Start: 24 @40480 has 2 MA's), (25, 40477), (32, 40456), (40, 40381), (41, 40378), (45, 40351), (50, 40315), (53, 40285), (57, 40249), (59, 40237), (60, 40234), (80, 40096),

Gene: Katzastrophic_50 Start: 35170, Stop: 35610, Start Num: 30
Candidate Starts for Katzastrophic_50:
(Start: 30 @35170 has 20 MA's), (60, 35359), (83, 35509),

Gene: Kieran_48 Start: 34884, Stop: 35327, Start Num: 30
Candidate Starts for Kieran_48:
(7, 34482), (9, 34656), (11, 34737), (Start: 30 @34884 has 20 MA's), (60, 35073), (69, 35145), (89, 35283),

Gene: Loviatar_90 Start: 36204, Stop: 36644, Start Num: 30
Candidate Starts for Loviatar_90:
(Start: 30 @36204 has 20 MA's), (37, 36252), (60, 36390), (67, 36453), (69, 36465), (76, 36507), (86, 36576),

Gene: Lyell_106 Start: 55834, Stop: 55397, Start Num: 29
Candidate Starts for Lyell_106:
(4, 56371), (6, 56248), (8, 56197), (10, 56005), (18, 55885), (Start: 29 @55834 has 9 MA's), (34, 55810), (36, 55789), (52, 55693), (54, 55681), (55, 55678), (61, 55636), (63, 55606), (68, 55573),

Gene: Musetta_105 Start: 56187, Stop: 55750, Start Num: 29
Candidate Starts for Musetta_105:
(1, 56811), (2, 56784), (3, 56763), (5, 56715), (6, 56601), (8, 56550), (10, 56358), (18, 56238), (Start: 29 @56187 has 9 MA's), (34, 56163), (36, 56142), (52, 56046), (54, 56034), (55, 56031), (61, 55989), (63, 55959), (68, 55926),

Gene: Necrophoxinus_109 Start: 56843, Stop: 56406, Start Num: 29
Candidate Starts for Necrophoxinus_109:
(Start: 29 @56843 has 9 MA's), (34, 56819), (36, 56798), (52, 56702), (54, 56690), (55, 56687), (61, 56645), (63, 56615), (68, 56582),

Gene: Olicious_78 Start: 40180, Stop: 39659, Start Num: 17
Candidate Starts for Olicious_78:
(Start: 17 @40180 has 8 MA's), (20, 40159), (Start: 24 @40132 has 2 MA's), (32, 40108), (40, 40033), (41, 40030), (45, 40003), (50, 39967), (51, 39958), (53, 39937), (57, 39901), (59, 39889), (60, 39886), (80, 39748),

Gene: OlinDD_107 Start: 58261, Stop: 57875, Start Num: 27
Candidate Starts for OlinDD_107:
(13, 58354), (Start: 16 @58318 has 1 MA's), (22, 58285), (26, 58264), (Start: 27 @58261 has 6 MA's), (39, 58180), (44, 58162), (54, 58108), (57, 58084), (66, 58012), (72, 57976), (74, 57958),

Gene: PauloDiaboli_327 Start: 168500, Stop: 168892, Start Num: 24
Candidate Starts for PauloDiaboli_327:
(Start: 24 @168500 has 2 MA's), (33, 168533), (37, 168563), (43, 168599), (64, 168755), (67, 168767), (71, 168794), (72, 168797), (85, 168878),

Gene: Pavlo_108 Start: 57864, Stop: 57499, Start Num: 31
Candidate Starts for Pavlo_108:
(19, 57915), (Start: 31 @57864 has 5 MA's), (39, 57795), (53, 57735), (54, 57726), (57, 57702), (60, 57687), (83, 57537), (84, 57528),

Gene: Percastrophe_78 Start: 40112, Stop: 39591, Start Num: 17
Candidate Starts for Percastrophe_78:
(Start: 17 @40112 has 8 MA's), (20, 40091), (Start: 24 @40064 has 2 MA's), (32, 40040), (40, 39965), (41, 39962), (45, 39935), (50, 39899), (53, 39869), (57, 39833), (59, 39821), (60, 39818), (80, 39680),

Gene: PhillyPhilly_105 Start: 56853, Stop: 56488, Start Num: 31
Candidate Starts for PhillyPhilly_105:
(19, 56904), (Start: 31 @56853 has 5 MA's), (39, 56784), (53, 56724), (54, 56715), (57, 56691), (60, 56676), (83, 56526), (84, 56517),

Gene: Pioneer3_107 Start: 58059, Stop: 57673, Start Num: 27
Candidate Starts for Pioneer3_107:
(13, 58152), (Start: 16 @58116 has 1 MA's), (22, 58083), (26, 58062), (Start: 27 @58059 has 6 MA's), (39, 57978), (44, 57960), (54, 57906), (57, 57882), (66, 57810), (72, 57774), (74, 57756),

Gene: Platte_106 Start: 57843, Stop: 57457, Start Num: 27

Candidate Starts for Platte_106:
(13, 57936), (Start: 16 @57900 has 1 MA's), (22, 57867), (26, 57846), (Start: 27 @57843 has 6 MA's), (39, 57762), (44, 57744), (54, 57690), (57, 57666), (66, 57594), (72, 57558), (74, 57540),

Gene: Quenya_51 Start: 35296, Stop: 35745, Start Num: 30
Candidate Starts for Quenya_51:
(12, 35191), (14, 35203), (Start: 30 @35296 has 20 MA's), (53, 35434), (57, 35467), (62, 35500), (70, 35557), (80, 35608),

Gene: Roman_109 Start: 57913, Stop: 57548, Start Num: 31
Candidate Starts for Roman_109:
(19, 57964), (Start: 31 @57913 has 5 MA's), (39, 57844), (53, 57784), (54, 57775), (57, 57751), (60, 57736), (83, 57586), (84, 57577),

Gene: Romero_78 Start: 40173, Stop: 39652, Start Num: 17
Candidate Starts for Romero_78:
(Start: 17 @40173 has 8 MA's), (20, 40152), (Start: 24 @40125 has 2 MA's), (32, 40101), (40, 40026), (41, 40023), (45, 39996), (50, 39960), (51, 39951), (53, 39930), (57, 39894), (59, 39882), (60, 39879), (80, 39741),

Gene: Rona_48 Start: 34834, Stop: 35277, Start Num: 30
Candidate Starts for Rona_48:
(Start: 30 @34834 has 20 MA's), (52, 34969), (53, 34972), (62, 35038), (70, 35095), (80, 35146), (87, 35197),

Gene: RunningBrook_109 Start: 56887, Stop: 56450, Start Num: 29
Candidate Starts for RunningBrook_109:
(Start: 29 @56887 has 9 MA's), (34, 56863), (36, 56842), (52, 56746), (54, 56734), (55, 56731), (61, 56689), (63, 56659), (68, 56626),

Gene: SanaSana_53 Start: 35511, Stop: 35948, Start Num: 30
Candidate Starts for SanaSana_53:
(Start: 30 @35511 has 20 MA's), (37, 35559), (54, 35658), (55, 35661), (60, 35697), (67, 35760), (69, 35772), (76, 35811),

Gene: Sharkboy_49 Start: 34933, Stop: 35376, Start Num: 30
Candidate Starts for Sharkboy_49:
(Start: 30 @34933 has 20 MA's), (52, 35068), (53, 35071), (62, 35137), (70, 35194), (80, 35245), (87, 35296),

Gene: StevieWelch_107 Start: 56127, Stop: 55690, Start Num: 29
Candidate Starts for StevieWelch_107:
(10, 56298), (21, 56160), (Start: 29 @56127 has 9 MA's), (34, 56103), (36, 56082), (52, 55986), (54, 55974), (63, 55899),

Gene: Stoor_51 Start: 35304, Stop: 35735, Start Num: 30
Candidate Starts for Stoor_51:
(Start: 30 @35304 has 20 MA's), (37, 35352), (54, 35451), (55, 35454), (60, 35490), (67, 35553), (69, 35565), (76, 35598), (88, 35679),

Gene: Stromboli_51 Start: 35169, Stop: 35606, Start Num: 30
Candidate Starts for Stromboli_51:

(Start: 30 @35169 has 20 MA's), (37, 35217), (54, 35316), (55, 35319), (60, 35355), (67, 35418), (69, 35430), (76, 35469),

Gene: Tandem_107 Start: 58139, Stop: 57753, Start Num: 27
Candidate Starts for Tandem_107:
(13, 58232), (Start: 16 @58196 has 1 MA's), (22, 58163), (26, 58142), (Start: 27 @58139 has 6 MA's), (39, 58058), (44, 58040), (54, 57986), (57, 57962), (66, 57890), (72, 57854), (74, 57836),

Gene: ToriToki_78 Start: 40176, Stop: 39655, Start Num: 17
Candidate Starts for ToriToki_78:
(Start: 17 @40176 has 8 MA's), (20, 40155), (Start: 24 @40128 has 2 MA's), (32, 40104), (40, 40029), (41, 40026), (45, 39999), (50, 39963), (53, 39933), (57, 39897), (59, 39885), (60, 39882), (80, 39744),

Gene: Treat_78 Start: 40051, Stop: 39530, Start Num: 16
Candidate Starts for Treat_78:
(Start: 16 @40051 has 1 MA's), (20, 40030), (Start: 24 @40003 has 2 MA's), (32, 39979), (40, 39904), (41, 39901), (50, 39838), (53, 39808), (57, 39772), (59, 39760), (60, 39757), (80, 39619), (88, 39556),

Gene: Welcome_109 Start: 56727, Stop: 56290, Start Num: 29
Candidate Starts for Welcome_109:
(Start: 29 @56727 has 9 MA's), (34, 56703), (36, 56682), (52, 56586), (54, 56574), (55, 56571), (61, 56529), (63, 56499), (68, 56466),

Gene: Wolfstar_113 Start: 59574, Stop: 59188, Start Num: 27
Candidate Starts for Wolfstar_113:
(15, 59646), (21, 59601), (Start: 27 @59574 has 6 MA's), (42, 59481), (49, 59442), (54, 59409), (57, 59385), (60, 59373), (73, 59277),

Gene: Yuma_105 Start: 55848, Stop: 55411, Start Num: 29
Candidate Starts for Yuma_105:
(Start: 29 @55848 has 9 MA's), (34, 55824), (36, 55803), (52, 55707), (54, 55695), (55, 55692), (61, 55650), (63, 55620), (68, 55587),

Gene: ZooBear_78 Start: 40177, Stop: 39656, Start Num: 17
Candidate Starts for ZooBear_78:
(Start: 17 @40177 has 8 MA's), (20, 40156), (Start: 24 @40129 has 2 MA's), (32, 40105), (40, 40030), (41, 40027), (45, 40000), (50, 39964), (53, 39934), (57, 39898), (59, 39886), (60, 39883), (80, 39745),

Gene: Zooman_323 Start: 180374, Stop: 180850, Start Num: 30
Candidate Starts for Zooman_323:
(Start: 30 @180374 has 20 MA's), (41, 180458), (46, 180485), (56, 180572), (58, 180590), (72, 180686), (75, 180707), (79, 180722), (83, 180746),

Gene: Zooman_10 Start: 4723, Stop: 5199, Start Num: 30
Candidate Starts for Zooman_10:
(Start: 30 @4723 has 20 MA's), (41, 4807), (46, 4834), (56, 4921), (58, 4939), (72, 5035), (75, 5056), (79, 5071), (83, 5095),