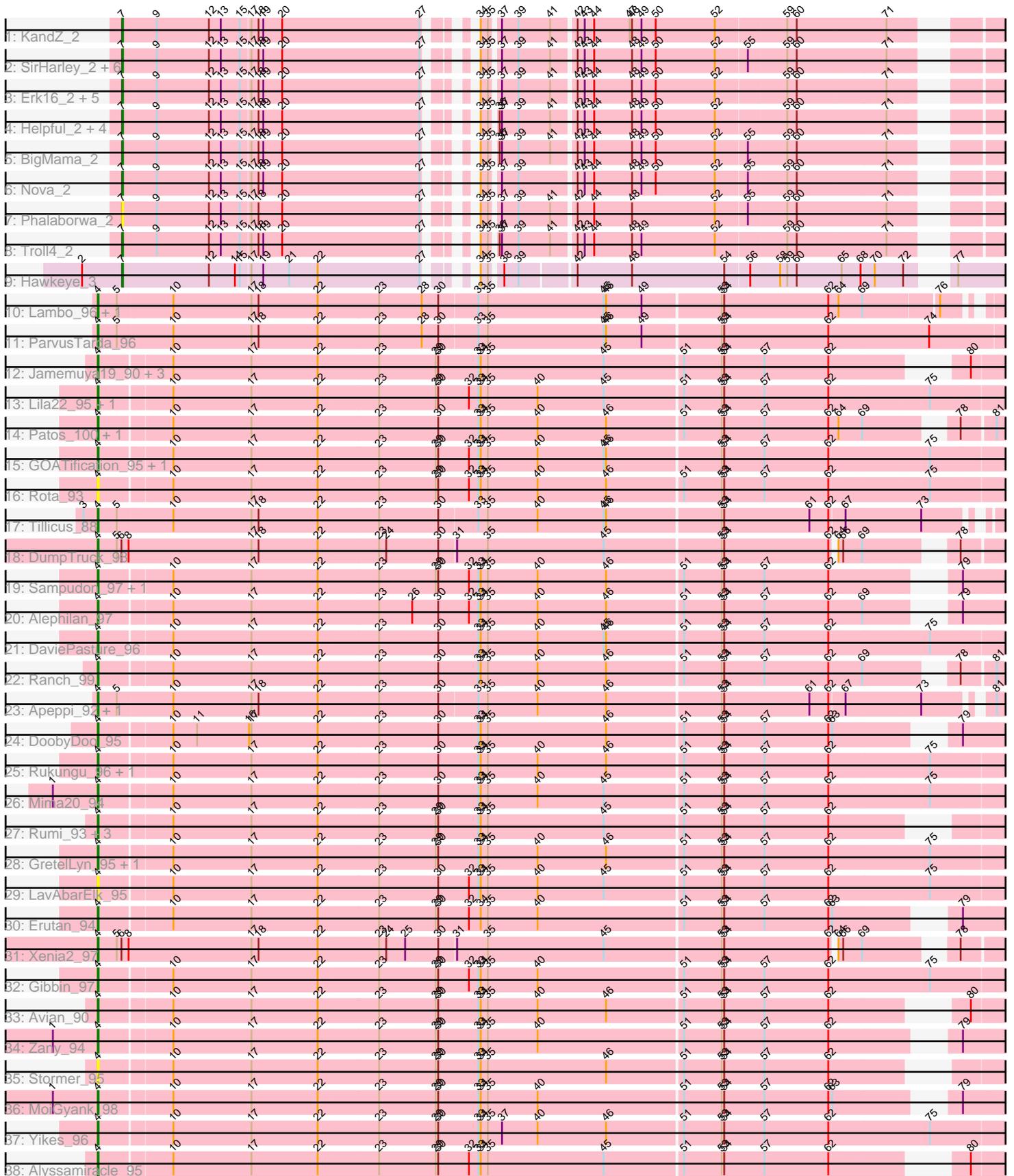


Zoomed Pham 289386



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 289386 Report

This analysis was run 03/28/26 on database version 641.

Pham number 289386 has 67 members, 8 are drafts.

Phages represented in each track:

- Track 1 : KandZ_2
- Track 2 : SirHarley_2, Giuseppe_2, Butterscotch_2, Adjutor_2, PBI1_2, Gumball_2, Visconti_2
- Track 3 : Erk16_2, PLOT_2, Thoth_2, Chill_2, WaldoWhy_2, Mopey_2
- Track 4 : Helpful_2, SuperheroCarly_2, Delton_2, Penelope2018_2, Prager_2
- Track 5 : BigMama_2
- Track 6 : Nova_2
- Track 7 : Phalaborwa_2
- Track 8 : Troll4_2
- Track 9 : Hawkeye_3
- Track 10 : Lambo_96, Wojtek_88
- Track 11 : ParvusTarda_96
- Track 12 : Jamemuya19_90, Astralis_92, Genamy16_95, RazorC_92
- Track 13 : Lila22_95, BirthdayBoy_97
- Track 14 : Patos_100, NorManre_100
- Track 15 : GOATification_95, Fulcrum_95
- Track 16 : Rota_93
- Track 17 : Tillicus_88
- Track 18 : DumpTruck_98
- Track 19 : Sampudon_97, Jalebi_95
- Track 20 : Alephilan_97
- Track 21 : DaviePasture_96
- Track 22 : Ranch_99
- Track 23 : Apeppi_92, LuckyLeo_94
- Track 24 : DoobyDoo_95
- Track 25 : Rukungu_96, OtterstedtS21_96
- Track 26 : Mima20_94
- Track 27 : Rumi_93, Charminar_94, NovaSharks_94, Riduram_93
- Track 28 : GretelLyn_95, Sadboi_95
- Track 29 : LavAbarElk_95
- Track 30 : Erutan_94
- Track 31 : Xenia2_97
- Track 32 : Gibbin_97
- Track 33 : Avian_90
- Track 34 : Zany_94
- Track 35 : Stormer_95
- Track 36 : MoiGyank_98

- Track 37 : Yikes_96
- Track 38 : Alyssamiracle_95

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

The start number called the most often in the published annotations is 4, it was called in 37 of the 59 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alephilan_97, Alyssamiracle_95, Apeppi_92, Astralis_92, Avian_90, BirthdayBoy_97, Charminar_94, DaviePasture_96, DoobyDoo_95, DumpTruck_98, Erutan_94, Fulcrum_95, GOATification_95, Genamy16_95, Gibbin_97, GretelLyn_95, Jalebi_95, Jamemuya19_90, Lambo_96, LavAbarElk_95, Lila22_95, LuckyLeo_94, Mima20_94, MoiGyank_98, NorManre_100, NovaSharks_94, OtterstedtS21_96, ParvusTarda_96, Patos_100, Ranch_99, RazorC_92, Riduram_93, Rota_93, Rukungu_96, Rumi_93, Sadboi_95, Sampudon_97, Stormer_95, Tillicus_88, Wojtek_88, Xenia2_97, Yikes_96, Zany_94,

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

-

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

- Adjutor_2, BigMama_2, Butterscotch_2, Chill_2, Delton_2, Erk16_2, Giuseppe_2, Gumball_2, Hawkeye_3, Helpful_2, KandZ_2, Mopey_2, Nova_2, PBI1_2, PLOT_2, Penelope2018_2, Phalaborwa_2, Prager_2, SirHarley_2, SuperheroCarly_2, Thoth_2, Troll4_2, Visconti_2, WaldoWhy_2,

Summary by start number:

Start 4:

- Found in 43 of 67 (64.2%) of genes in pham
- Manual Annotations of this start: 37 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alephilan_97 (DV), Alyssamiracle_95 (DV), Apeppi_92 (DV), Astralis_92 (DV), Avian_90 (DV), BirthdayBoy_97 (DV), Charminar_94 (DV), DaviePasture_96 (DV), DoobyDoo_95 (DV), DumpTruck_98 (DV), Erutan_94 (DV), Fulcrum_95 (DV), GOATification_95 (DV), Genamy16_95 (DV), Gibbin_97 (DV), GretelLyn_95 (DV), Jalebi_95 (DV), Jamemuya19_90 (DV), Lambo_96 (DV), LavAbarElk_95 (DV), Lila22_95 (DV), LuckyLeo_94 (DV), Mima20_94 (DV), MoiGyank_98 (DV), NorManre_100 (DV), NovaSharks_94 (DV), OtterstedtS21_96 (DV), ParvusTarda_96 (DV), Patos_100 (DV), Ranch_99 (DV), RazorC_92 (DV), Riduram_93 (DV), Rota_93 (DV), Rukungu_96 (DV), Rumi_93 (DV), Sadboi_95 (DV), Sampudon_97 (DV), Stormer_95 (DV), Tillicus_88 (DV), Wojtek_88 (DV), Xenia2_97 (DV), Yikes_96 (DV), Zany_94 (DV),

Start 7:

- Found in 24 of 67 (35.8%) of genes in pham
- Manual Annotations of this start: 22 of 59
- Called 100.0% of time when present

• Phage (with cluster) where this start called: Adjutor_2 (D1), BigMama_2 (D1), Butterscotch_2 (D1), Chill_2 (D1), Delton_2 (D1), Erk16_2 (D1), Giuseppe_2 (D1), Gumball_2 (D1), Hawkeye_3 (D2), Helpful_2 (D1), KandZ_2 (D1), Mopey_2 (D1), Nova_2 (D1), PBI1_2 (D1), PLOT_2 (D1), Penelope2018_2 (D1), Phalaborwa_2 (D1), Prager_2 (D1), SirHarley_2 (D1), SuperheroCarly_2 (D1), Thoth_2 (D1), Troll4_2 (D1), Visconti_2 (D1), WaldoWhy_2 (D1),

Summary by clusters:

There are 3 clusters represented in this pham: DV, D2, D1,

Info for manual annotations of cluster D1:

•Start number 7 was manually annotated 21 times for cluster D1.

Info for manual annotations of cluster D2:

•Start number 7 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DV:

•Start number 4 was manually annotated 37 times for cluster DV.

Gene Information:

Gene: Adjutor_2 Start: 421, Stop: 1524, Start Num: 7

Candidate Starts for Adjutor_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (55, 1141), (59, 1189), (60, 1201), (71, 1312), (87, 1489),

Gene: Alephilan_97 Start: 65669, Stop: 66970, Start Num: 4

Candidate Starts for Alephilan_97:

(Start: 4 @65669 has 37 MA's), (10, 65756), (17, 65855), (22, 65939), (23, 66014), (26, 66056), (30, 66089), (32, 66128), (33, 66140), (34, 66143), (35, 66152), (40, 66215), (46, 66302), (51, 66395), (53, 66443), (54, 66446), (57, 66497), (62, 66578), (69, 66617), (79, 66692), (88, 66866),

Gene: Alyssamiracle_95 Start: 63627, Stop: 64913, Start Num: 4

Candidate Starts for Alyssamiracle_95:

(Start: 4 @63627 has 37 MA's), (10, 63714), (17, 63813), (22, 63897), (23, 63972), (29, 64044), (30, 64047), (32, 64086), (33, 64098), (34, 64101), (35, 64110), (45, 64257), (51, 64353), (53, 64401), (54, 64404), (57, 64455), (62, 64536), (80, 64647), (88, 64809),

Gene: Apeppi_92 Start: 65297, Stop: 66625, Start Num: 4

Candidate Starts for Apeppi_92:

(Start: 4 @65297 has 37 MA's), (5, 65321), (10, 65390), (17, 65489), (18, 65498), (22, 65573), (23, 65648), (30, 65723), (33, 65771), (35, 65783), (40, 65846), (46, 65933), (53, 66074), (54, 66077), (61, 66185), (62, 66209), (67, 66227), (73, 66320), (81, 66389), (88, 66521), (93, 66566),

Gene: Astralis_92 Start: 63154, Stop: 64440, Start Num: 4

Candidate Starts for Astralis_92:

(Start: 4 @63154 has 37 MA's), (10, 63241), (17, 63340), (22, 63424), (23, 63499), (29, 63571), (30, 63574), (33, 63625), (34, 63628), (35, 63637), (45, 63784), (51, 63880), (53, 63928), (54, 63931), (57, 63982), (62, 64063), (80, 64174), (88, 64336),

Gene: Avian_90 Start: 63389, Stop: 64675, Start Num: 4

Candidate Starts for Avian_90:

(Start: 4 @63389 has 37 MA's), (10, 63476), (17, 63575), (22, 63659), (23, 63734), (29, 63806), (30, 63809), (33, 63860), (34, 63863), (35, 63872), (40, 63935), (46, 64022), (51, 64115), (53, 64163), (54, 64166), (57, 64217), (62, 64298), (80, 64409), (88, 64571),

Gene: BigMama_2 Start: 421, Stop: 1542, Start Num: 7

Candidate Starts for BigMama_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (36, 838), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (55, 1141), (59, 1189), (60, 1201), (71, 1312), (87, 1507),

Gene: BirthdayBoy_97 Start: 65681, Stop: 67027, Start Num: 4

Candidate Starts for BirthdayBoy_97:

(Start: 4 @65681 has 37 MA's), (10, 65768), (17, 65867), (22, 65951), (23, 66026), (29, 66098), (30, 66101), (32, 66140), (33, 66152), (34, 66155), (35, 66164), (40, 66227), (45, 66311), (51, 66407), (53, 66455), (54, 66458), (57, 66509), (62, 66590), (75, 66710), (88, 66923),

Gene: Butterscotch_2 Start: 421, Stop: 1524, Start Num: 7

Candidate Starts for Butterscotch_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (55, 1141), (59, 1189), (60, 1201), (71, 1312), (87, 1489),

Gene: Charminar_94 Start: 62946, Stop: 64232, Start Num: 4

Candidate Starts for Charminar_94:

(Start: 4 @62946 has 37 MA's), (10, 63033), (17, 63132), (22, 63216), (23, 63291), (29, 63363), (30, 63366), (33, 63417), (34, 63420), (35, 63429), (45, 63576), (51, 63672), (53, 63720), (54, 63723), (57, 63774), (62, 63855), (88, 64128),

Gene: Chill_2 Start: 421, Stop: 1533, Start Num: 7

Candidate Starts for Chill_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (59, 1189), (60, 1201), (71, 1312), (87, 1498),

Gene: DaviePasture_96 Start: 65655, Stop: 67001, Start Num: 4

Candidate Starts for DaviePasture_96:

(Start: 4 @65655 has 37 MA's), (10, 65742), (17, 65841), (22, 65925), (23, 66000), (30, 66075), (33, 66126), (34, 66129), (35, 66138), (40, 66201), (45, 66285), (46, 66288), (51, 66381), (53, 66429), (54, 66432), (57, 66483), (62, 66564), (75, 66684), (88, 66897),

Gene: Delton_2 Start: 421, Stop: 1533, Start Num: 7

Candidate Starts for Delton_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (36, 838), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (59, 1189), (60, 1201), (71, 1312), (87, 1498),

Gene: DoobyDoo_95 Start: 64434, Stop: 65735, Start Num: 4

Candidate Starts for DoobyDoo_95:

(Start: 4 @64434 has 37 MA's), (10, 64521), (11, 64551), (16, 64617), (17, 64620), (22, 64704), (23, 64779), (30, 64854), (33, 64905), (34, 64908), (35, 64917), (46, 65067), (51, 65160), (53, 65208), (54, 65211), (57, 65262), (62, 65343), (63, 65346), (79, 65457), (88, 65631),

Gene: DumpTruck_98 Start: 65883, Stop: 67190, Start Num: 4

Candidate Starts for DumpTruck_98:

(Start: 4 @65883 has 37 MA's), (5, 65907), (6, 65913), (8, 65922), (17, 66078), (18, 66087), (22, 66162), (23, 66237), (24, 66246), (30, 66312), (31, 66333), (35, 66372), (45, 66519), (53, 66663), (54, 66666), (62, 66798), (64, 66801), (66, 66807), (69, 66831), (78, 66918), (84, 67053), (86, 67077), (90, 67098), (92, 67125),

Gene: Erk16_2 Start: 421, Stop: 1524, Start Num: 7

Candidate Starts for Erk16_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (59, 1189), (60, 1201), (71, 1312), (87, 1489),

Gene: Erutan_94 Start: 65045, Stop: 66346, Start Num: 4

Candidate Starts for Erutan_94:

(Start: 4 @65045 has 37 MA's), (10, 65132), (17, 65231), (22, 65315), (23, 65390), (29, 65462), (30, 65465), (32, 65504), (34, 65519), (35, 65528), (40, 65591), (51, 65771), (53, 65819), (54, 65822), (57, 65873), (62, 65954), (63, 65957), (79, 66068), (88, 66242),

Gene: Fulcrum_95 Start: 65648, Stop: 66994, Start Num: 4

Candidate Starts for Fulcrum_95:

(Start: 4 @65648 has 37 MA's), (10, 65735), (17, 65834), (22, 65918), (23, 65993), (29, 66065), (30, 66068), (32, 66107), (33, 66119), (34, 66122), (35, 66131), (40, 66194), (45, 66278), (46, 66281), (53, 66422), (54, 66425), (57, 66476), (62, 66557), (75, 66677), (88, 66890),

Gene: GOATification_95 Start: 65648, Stop: 66994, Start Num: 4

Candidate Starts for GOATification_95:

(Start: 4 @65648 has 37 MA's), (10, 65735), (17, 65834), (22, 65918), (23, 65993), (29, 66065), (30, 66068), (32, 66107), (33, 66119), (34, 66122), (35, 66131), (40, 66194), (45, 66278), (46, 66281), (53, 66422), (54, 66425), (57, 66476), (62, 66557), (75, 66677), (88, 66890),

Gene: Genamy16_95 Start: 63676, Stop: 64962, Start Num: 4

Candidate Starts for Genamy16_95:

(Start: 4 @63676 has 37 MA's), (10, 63763), (17, 63862), (22, 63946), (23, 64021), (29, 64093), (30, 64096), (33, 64147), (34, 64150), (35, 64159), (45, 64306), (51, 64402), (53, 64450), (54, 64453), (57, 64504), (62, 64585), (80, 64696), (88, 64858),

Gene: Gibbin_97 Start: 65825, Stop: 67171, Start Num: 4

Candidate Starts for Gibbin_97:

(Start: 4 @65825 has 37 MA's), (10, 65912), (17, 66011), (22, 66095), (23, 66170), (29, 66242), (30, 66245), (32, 66284), (33, 66296), (34, 66299), (35, 66308), (40, 66371), (51, 66551), (53, 66599), (54, 66602), (57, 66653), (62, 66734), (75, 66854), (88, 67067),

Gene: Giuseppe_2 Start: 421, Stop: 1515, Start Num: 7

Candidate Starts for Giuseppe_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (55, 1141), (59, 1189), (60, 1201), (71, 1312), (87, 1480),

Gene: GretellYn_95 Start: 65652, Stop: 66998, Start Num: 4

Candidate Starts for GretellYn_95:

(Start: 4 @65652 has 37 MA's), (10, 65739), (17, 65838), (22, 65922), (23, 65997), (29, 66069), (30, 66072), (33, 66123), (34, 66126), (35, 66135), (40, 66198), (46, 66285), (51, 66378), (53, 66426), (54, 66429), (57, 66480), (62, 66561), (75, 66681), (88, 66894),

Gene: Gumball_2 Start: 421, Stop: 1533, Start Num: 7

Candidate Starts for Gumball_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (55, 1141), (59, 1189), (60, 1201), (71, 1312), (87, 1498),

Gene: Hawkeye_3 Start: 790, Stop: 1944, Start Num: 7

Candidate Starts for Hawkeye_3:

(2, 739), (Start: 7 @790 has 22 MA's), (12, 898), (14, 931), (15, 937), (17, 949), (19, 964), (21, 997), (22, 1033), (27, 1162), (34, 1192), (35, 1201), (38, 1213), (39, 1231), (42, 1294), (48, 1363), (54, 1480), (56, 1510), (58, 1546), (59, 1555), (60, 1567), (65, 1624), (68, 1648), (70, 1666), (72, 1702), (77, 1729), (82, 1801), (91, 1924),

Gene: Helpful_2 Start: 421, Stop: 1524, Start Num: 7

Candidate Starts for Helpful_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (36, 838), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (59, 1189), (60, 1201), (71, 1312), (87, 1489),

Gene: Jalebi_95 Start: 66593, Stop: 67894, Start Num: 4

Candidate Starts for Jalebi_95:

(Start: 4 @66593 has 37 MA's), (10, 66680), (17, 66779), (22, 66863), (23, 66938), (29, 67010), (30, 67013), (32, 67052), (33, 67064), (34, 67067), (35, 67076), (40, 67139), (46, 67226), (51, 67319), (53, 67367), (54, 67370), (57, 67421), (62, 67502), (79, 67616), (88, 67790),

Gene: Jamemuya19_90 Start: 63301, Stop: 64587, Start Num: 4

Candidate Starts for Jamemuya19_90:

(Start: 4 @63301 has 37 MA's), (10, 63388), (17, 63487), (22, 63571), (23, 63646), (29, 63718), (30, 63721), (33, 63772), (34, 63775), (35, 63784), (45, 63931), (51, 64027), (53, 64075), (54, 64078), (57, 64129), (62, 64210), (80, 64321), (88, 64483),

Gene: KandZ_2 Start: 421, Stop: 1524, Start Num: 7

Candidate Starts for KandZ_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (47, 994), (48, 997), (49, 1009), (50, 1027), (52, 1102), (59, 1189), (60, 1201), (71, 1312), (87, 1489),

Gene: Lambo_96 Start: 65885, Stop: 67201, Start Num: 4

Candidate Starts for Lambo_96:

(Start: 4 @65885 has 37 MA's), (5, 65909), (10, 65978), (17, 66077), (18, 66086), (22, 66161), (23, 66236), (28, 66290), (30, 66311), (33, 66359), (35, 66371), (45, 66518), (46, 66521), (49, 66566), (53, 66662), (54, 66665), (62, 66797), (64, 66809), (69, 66839), (76, 66926), (88, 67097),

Gene: LavAbarElk_95 Start: 64771, Stop: 66117, Start Num: 4

Candidate Starts for LavAbarElk_95:

(Start: 4 @64771 has 37 MA's), (10, 64858), (17, 64957), (22, 65041), (23, 65116), (30, 65191), (32, 65230), (33, 65242), (34, 65245), (35, 65254), (40, 65317), (45, 65401), (51, 65497), (53, 65545), (54,

65548), (57, 65599), (62, 65680), (75, 65800), (88, 66013),

Gene: Lila22_95 Start: 65625, Stop: 66971, Start Num: 4

Candidate Starts for Lila22_95:

(Start: 4 @65625 has 37 MA's), (10, 65712), (17, 65811), (22, 65895), (23, 65970), (29, 66042), (30, 66045), (32, 66084), (33, 66096), (34, 66099), (35, 66108), (40, 66171), (45, 66255), (51, 66351), (53, 66399), (54, 66402), (57, 66453), (62, 66534), (75, 66654), (88, 66867),

Gene: LuckyLeo_94 Start: 65297, Stop: 66625, Start Num: 4

Candidate Starts for LuckyLeo_94:

(Start: 4 @65297 has 37 MA's), (5, 65321), (10, 65390), (17, 65489), (18, 65498), (22, 65573), (23, 65648), (30, 65723), (33, 65771), (35, 65783), (40, 65846), (46, 65933), (53, 66074), (54, 66077), (61, 66185), (62, 66209), (67, 66227), (73, 66320), (81, 66389), (88, 66521), (93, 66566),

Gene: Mima20_94 Start: 65382, Stop: 66728, Start Num: 4

Candidate Starts for Mima20_94:

(1, 65325), (Start: 4 @65382 has 37 MA's), (10, 65469), (17, 65568), (22, 65652), (23, 65727), (30, 65802), (33, 65853), (34, 65856), (35, 65865), (40, 65928), (45, 66012), (51, 66108), (53, 66156), (54, 66159), (57, 66210), (62, 66291), (75, 66411), (88, 66624),

Gene: MoiGyank_98 Start: 65906, Stop: 67207, Start Num: 4

Candidate Starts for MoiGyank_98:

(1, 65849), (Start: 4 @65906 has 37 MA's), (10, 65993), (17, 66092), (22, 66176), (23, 66251), (29, 66323), (30, 66326), (33, 66377), (34, 66380), (35, 66389), (40, 66452), (51, 66632), (53, 66680), (54, 66683), (57, 66734), (62, 66815), (63, 66818), (79, 66929), (88, 67103),

Gene: Mopey_2 Start: 421, Stop: 1524, Start Num: 7

Candidate Starts for Mopey_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (59, 1189), (60, 1201), (71, 1312), (87, 1489),

Gene: NorManre_100 Start: 66924, Stop: 68237, Start Num: 4

Candidate Starts for NorManre_100:

(Start: 4 @66924 has 37 MA's), (10, 67011), (17, 67110), (22, 67194), (23, 67269), (30, 67344), (33, 67395), (34, 67398), (35, 67407), (40, 67470), (46, 67557), (51, 67650), (53, 67698), (54, 67701), (57, 67752), (62, 67833), (64, 67845), (69, 67875), (78, 67962), (81, 68001), (88, 68133),

Gene: Nova_2 Start: 421, Stop: 1533, Start Num: 7

Candidate Starts for Nova_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (37, 841), (39, 862), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (55, 1141), (59, 1189), (60, 1201), (71, 1312), (87, 1498),

Gene: NovaSharks_94 Start: 63376, Stop: 64662, Start Num: 4

Candidate Starts for NovaSharks_94:

(Start: 4 @63376 has 37 MA's), (10, 63463), (17, 63562), (22, 63646), (23, 63721), (29, 63793), (30, 63796), (33, 63847), (34, 63850), (35, 63859), (45, 64006), (51, 64102), (53, 64150), (54, 64153), (57, 64204), (62, 64285), (88, 64558),

Gene: OtterstedtS21_96 Start: 65736, Stop: 67082, Start Num: 4

Candidate Starts for OtterstedtS21_96:

(Start: 4 @65736 has 37 MA's), (10, 65823), (17, 65922), (22, 66006), (23, 66081), (30, 66156), (33, 66207), (34, 66210), (35, 66219), (40, 66282), (46, 66369), (51, 66462), (53, 66510), (54, 66513), (57, 66564), (62, 66645), (75, 66765), (88, 66978),

Gene: PBI1_2 Start: 421, Stop: 1524, Start Num: 7

Candidate Starts for PBI1_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (55, 1141), (59, 1189), (60, 1201), (71, 1312), (87, 1489),

Gene: PLOT_2 Start: 421, Stop: 1524, Start Num: 7

Candidate Starts for PLOT_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (59, 1189), (60, 1201), (71, 1312), (87, 1489),

Gene: ParvusTarda_96 Start: 65318, Stop: 66667, Start Num: 4

Candidate Starts for ParvusTarda_96:

(Start: 4 @65318 has 37 MA's), (5, 65342), (10, 65411), (17, 65510), (18, 65519), (22, 65594), (23, 65669), (28, 65723), (30, 65744), (33, 65792), (35, 65804), (45, 65951), (46, 65954), (49, 65999), (53, 66095), (54, 66098), (62, 66230), (74, 66350), (88, 66563),

Gene: Patos_100 Start: 66923, Stop: 68236, Start Num: 4

Candidate Starts for Patos_100:

(Start: 4 @66923 has 37 MA's), (10, 67010), (17, 67109), (22, 67193), (23, 67268), (30, 67343), (33, 67394), (34, 67397), (35, 67406), (40, 67469), (46, 67556), (51, 67649), (53, 67697), (54, 67700), (57, 67751), (62, 67832), (64, 67844), (69, 67874), (78, 67961), (81, 68000), (88, 68132),

Gene: Penelope2018_2 Start: 421, Stop: 1524, Start Num: 7

Candidate Starts for Penelope2018_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (36, 838), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (59, 1189), (60, 1201), (71, 1312), (87, 1489),

Gene: Phalaborwa_2 Start: 421, Stop: 1542, Start Num: 7

Candidate Starts for Phalaborwa_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (20, 619), (27, 793), (34, 823), (35, 832), (37, 841), (39, 862), (41, 901), (42, 928), (44, 949), (48, 997), (52, 1102), (55, 1141), (59, 1189), (60, 1201), (71, 1312), (83, 1432), (87, 1507), (89, 1513),

Gene: Prager_2 Start: 421, Stop: 1533, Start Num: 7

Candidate Starts for Prager_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (36, 838), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (59, 1189), (60, 1201), (71, 1312), (87, 1498),

Gene: Ranch_99 Start: 64973, Stop: 66283, Start Num: 4

Candidate Starts for Ranch_99:

(Start: 4 @64973 has 37 MA's), (10, 65060), (17, 65159), (22, 65243), (23, 65318), (30, 65393), (33, 65444), (34, 65447), (35, 65456), (40, 65519), (46, 65606), (51, 65699), (53, 65747), (54, 65750), (57, 65801), (62, 65882), (69, 65921), (78, 66008), (81, 66047), (88, 66179),

Gene: RazorC_92 Start: 63309, Stop: 64595, Start Num: 4

Candidate Starts for RazorC_92:

(Start: 4 @63309 has 37 MA's), (10, 63396), (17, 63495), (22, 63579), (23, 63654), (29, 63726), (30, 63729), (33, 63780), (34, 63783), (35, 63792), (45, 63939), (51, 64035), (53, 64083), (54, 64086), (57, 64137), (62, 64218), (80, 64329), (88, 64491),

Gene: Riduram_93 Start: 63016, Stop: 64302, Start Num: 4

Candidate Starts for Riduram_93:

(Start: 4 @63016 has 37 MA's), (10, 63103), (17, 63202), (22, 63286), (23, 63361), (29, 63433), (30, 63436), (33, 63487), (34, 63490), (35, 63499), (45, 63646), (51, 63742), (53, 63790), (54, 63793), (57, 63844), (62, 63925), (88, 64198),

Gene: Rota_93 Start: 65378, Stop: 66724, Start Num: 4

Candidate Starts for Rota_93:

(Start: 4 @65378 has 37 MA's), (10, 65465), (17, 65564), (22, 65648), (23, 65723), (29, 65795), (30, 65798), (32, 65837), (33, 65849), (34, 65852), (35, 65861), (40, 65924), (46, 66011), (51, 66104), (53, 66152), (54, 66155), (57, 66206), (62, 66287), (75, 66407), (88, 66620),

Gene: Rukungu_96 Start: 66314, Stop: 67660, Start Num: 4

Candidate Starts for Rukungu_96:

(Start: 4 @66314 has 37 MA's), (10, 66401), (17, 66500), (22, 66584), (23, 66659), (30, 66734), (33, 66785), (34, 66788), (35, 66797), (40, 66860), (46, 66947), (51, 67040), (53, 67088), (54, 67091), (57, 67142), (62, 67223), (75, 67343), (88, 67556),

Gene: Rumi_93 Start: 62971, Stop: 64257, Start Num: 4

Candidate Starts for Rumi_93:

(Start: 4 @62971 has 37 MA's), (10, 63058), (17, 63157), (22, 63241), (23, 63316), (29, 63388), (30, 63391), (33, 63442), (34, 63445), (35, 63454), (45, 63601), (51, 63697), (53, 63745), (54, 63748), (57, 63799), (62, 63880), (88, 64153),

Gene: Sadboi_95 Start: 65532, Stop: 66878, Start Num: 4

Candidate Starts for Sadboi_95:

(Start: 4 @65532 has 37 MA's), (10, 65619), (17, 65718), (22, 65802), (23, 65877), (29, 65949), (30, 65952), (33, 66003), (34, 66006), (35, 66015), (40, 66078), (46, 66165), (51, 66258), (53, 66306), (54, 66309), (57, 66360), (62, 66441), (75, 66561), (88, 66774),

Gene: Sampudon_97 Start: 66592, Stop: 67893, Start Num: 4

Candidate Starts for Sampudon_97:

(Start: 4 @66592 has 37 MA's), (10, 66679), (17, 66778), (22, 66862), (23, 66937), (29, 67009), (30, 67012), (32, 67051), (33, 67063), (34, 67066), (35, 67075), (40, 67138), (46, 67225), (51, 67318), (53, 67366), (54, 67369), (57, 67420), (62, 67501), (79, 67615), (88, 67789),

Gene: SirHarley_2 Start: 421, Stop: 1515, Start Num: 7

Candidate Starts for SirHarley_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (55, 1141), (59, 1189), (60, 1201), (71, 1312), (87, 1480),

Gene: Stormer_95 Start: 63083, Stop: 64369, Start Num: 4

Candidate Starts for Stormer_95:

(Start: 4 @63083 has 37 MA's), (10, 63170), (17, 63269), (22, 63353), (23, 63428), (29, 63500), (30, 63503), (33, 63554), (34, 63557), (35, 63566), (46, 63716), (51, 63809), (53, 63857), (54, 63860), (57, 63911), (62, 63992), (88, 64265),

Gene: SuperheroCarly_2 Start: 421, Stop: 1533, Start Num: 7

Candidate Starts for SuperheroCarly_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (36, 838), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (59, 1189), (60, 1201), (71, 1312), (87, 1498),

Gene: Thoth_2 Start: 421, Stop: 1524, Start Num: 7

Candidate Starts for Thoth_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (59, 1189), (60, 1201), (71, 1312), (87, 1489),

Gene: Tillicus_88 Start: 64659, Stop: 65981, Start Num: 4

Candidate Starts for Tillicus_88:

(3, 64641), (Start: 4 @64659 has 37 MA's), (5, 64683), (10, 64752), (17, 64851), (18, 64860), (22, 64935), (23, 65010), (30, 65085), (33, 65133), (35, 65145), (40, 65208), (45, 65292), (46, 65295), (53, 65436), (54, 65439), (61, 65547), (62, 65571), (67, 65589), (73, 65682), (85, 65856), (88, 65877),

Gene: Troll4_2 Start: 421, Stop: 1524, Start Num: 7

Candidate Starts for Troll4_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (36, 838), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (52, 1102), (59, 1189), (60, 1201), (71, 1312), (87, 1489),

Gene: Visconti_2 Start: 421, Stop: 1533, Start Num: 7

Candidate Starts for Visconti_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (55, 1141), (59, 1189), (60, 1201), (71, 1312), (87, 1498),

Gene: WaldoWhy_2 Start: 421, Stop: 1533, Start Num: 7

Candidate Starts for WaldoWhy_2:

(Start: 7 @421 has 22 MA's), (9, 463), (12, 529), (13, 544), (15, 568), (17, 580), (18, 589), (19, 595), (20, 619), (27, 793), (34, 823), (35, 832), (37, 841), (39, 862), (41, 901), (42, 928), (43, 937), (44, 949), (48, 997), (49, 1009), (50, 1027), (52, 1102), (59, 1189), (60, 1201), (71, 1312), (87, 1498),

Gene: Wojtek_88 Start: 65823, Stop: 67139, Start Num: 4

Candidate Starts for Wojtek_88:

(Start: 4 @65823 has 37 MA's), (5, 65847), (10, 65916), (17, 66015), (18, 66024), (22, 66099), (23, 66174), (28, 66228), (30, 66249), (33, 66297), (35, 66309), (45, 66456), (46, 66459), (49, 66504), (53, 66600), (54, 66603), (62, 66735), (64, 66747), (69, 66777), (76, 66864), (88, 67035),

Gene: Xenia2_97 Start: 66264, Stop: 67571, Start Num: 4

Candidate Starts for Xenia2_97:

(Start: 4 @66264 has 37 MA's), (5, 66288), (6, 66294), (8, 66303), (17, 66459), (18, 66468), (22, 66543), (23, 66618), (24, 66627), (25, 66651), (30, 66693), (31, 66714), (35, 66753), (45, 66900), (53, 67044), (54, 67047), (62, 67179), (64, 67182), (66, 67188), (69, 67212), (78, 67299), (84, 67434), (86, 67458), (90, 67479), (92, 67506),

Gene: Yikes_96 Start: 66196, Stop: 67542, Start Num: 4

Candidate Starts for Yikes_96:

(Start: 4 @66196 has 37 MA's), (10, 66283), (17, 66382), (22, 66466), (23, 66541), (29, 66613), (30, 66616), (33, 66667), (34, 66670), (35, 66679), (37, 66697), (40, 66742), (46, 66829), (51, 66922), (53,

66970), (54, 66973), (57, 67024), (62, 67105), (75, 67225), (88, 67438),

Gene: Zany_94 Start: 66336, Stop: 67637, Start Num: 4

Candidate Starts for Zany_94:

(1, 66279), (Start: 4 @66336 has 37 MA's), (10, 66423), (17, 66522), (22, 66606), (23, 66681), (29, 66753), (30, 66756), (33, 66807), (34, 66810), (35, 66819), (40, 66882), (51, 67062), (53, 67110), (54, 67113), (57, 67164), (62, 67245), (79, 67359), (88, 67533),