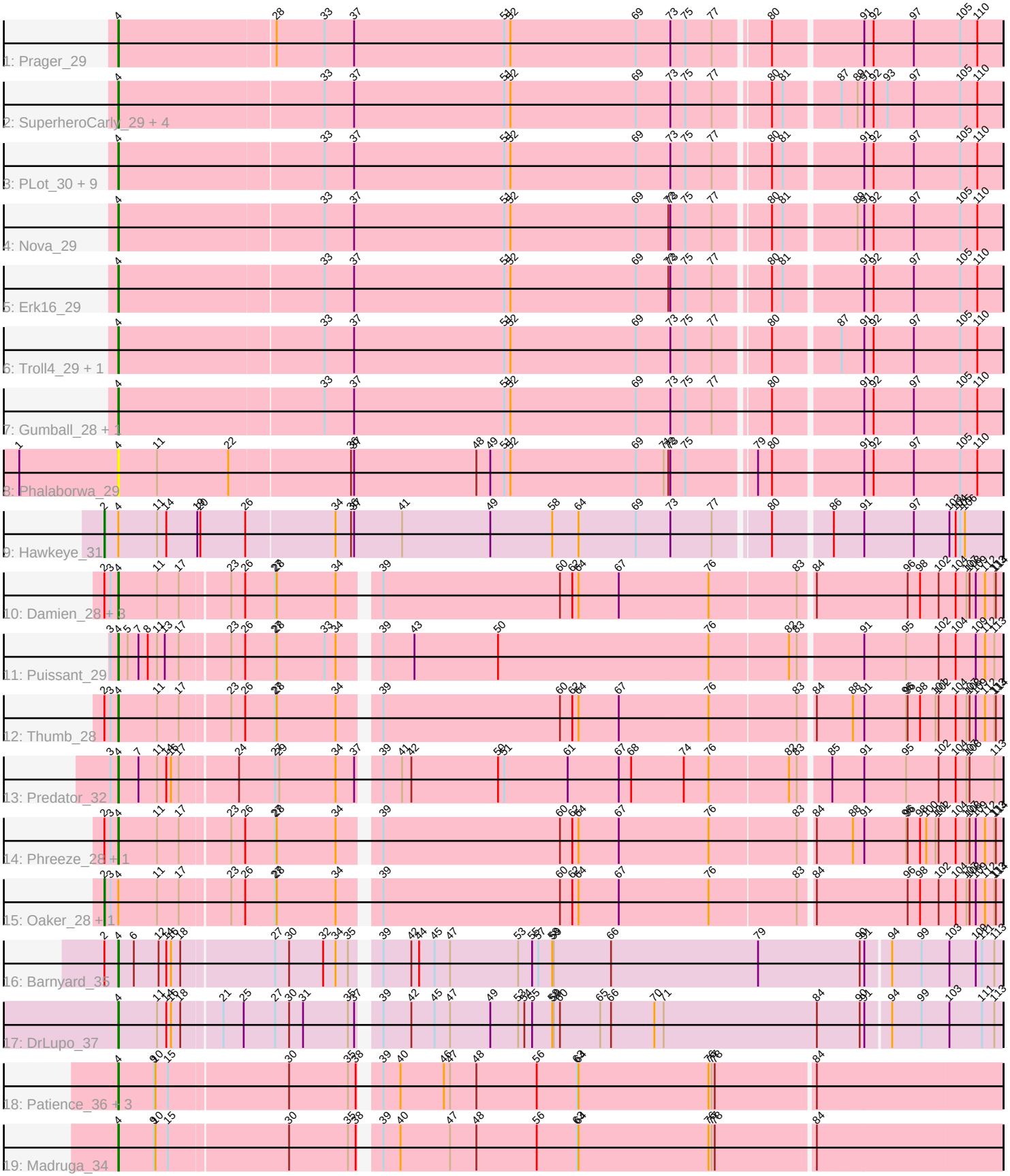
Pham 305130


1: Prager_29
2: SuperheroCarly_29 + 4
3: PLot_30 + 9
4: Nova_29
5: Erk16_29
6: Troll4_29 + 1
7: Gumball_28 + 1
8: Phalaborwa_29
9: Hawkeye_31
10: Damien_28 + 3
11: Puissant_29
12: Thumb_28
13: Predator_32
14: Phreeze_28 + 1
15: Oaker_28 + 1
16: Barnyard_35
17: DrLupo_37
18: Patience_36 + 3
19: Madruga_34

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 305130 Report

This analysis was run 06/08/26 on database version 649.

Pham number 305130 has 42 members, 3 are drafts.

Phages represented in each track:
• Track 1 : Prager_29
• Track 2 : SuperheroCarly_29, Giuseppe_29, Mopey_29, Delton_29, Helpful_30
• Track 3 : PLot_30, Butterscotch_29, KandZ_29, Chill_30, WaldoWhy_30, BigMama_27, Adjutor_30, Penelope2018_29, PBI1_29, Thoth_29
• Track 4 : Nova_29
• Track 5 : Erk16_29
• Track 6 : Troll4_29, Visconti_29
• Track 7 : Gumball_28, SirHarley_28
• Track 8 : Phalaborwa_29
• Track 9 : Hawkeye_31
• Track 10 : Damien_28, Beckerton_28, Megatron06_30, Cborch11_29
• Track 11 : Puissant_29
• Track 12 : Thumb_28
• Track 13 : Predator_32
• Track 14 : Phreeze_28, BobtimousPrime_30
• Track 15 : Oaker_28, Konstantine_33
• Track 16 : Barnyard_35
• Track 17 : DrLupo_37
• Track 18 : Patience_36, Demikore_36, Labelle_35, SuperSonics_35
• Track 19 : Madruga_34

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 36 of the 39 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Adjutor_30, Barnyard_35, Beckerton_28, BigMama_27, BobtimousPrime_30, Butterscotch_29, Cborch11_29, Chill_30, Damien_28, Delton_29, Demikore_36, DrLupo_37, Erk16_29, Giuseppe_29, Gumball_28, Helpful_30, KandZ_29, Labelle_35, Madruga_34, Megatron06_30, Mopey_29, Nova_29, PBI1_29, PLot_30, Patience_36, Penelope2018_29, Phalaborwa_29, Phreeze_28, Prager_29, Predator_32, Puissant_29, SirHarley_28, SuperSonics_35, SuperheroCarly_29, Thoth_29, Thumb_28, Troll4_29, Visconti_29, WaldoWhy_30,

Genes that have the "Most Annotated" start but do not call it:
• Hawkeye_31, Konstantine_33, Oaker_28,

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

Summary by start number:

Start 2:
• Found in 11 of 42 (26.2%) of genes in pham
• Manual Annotations of this start: 3 of 39
• Called 27.3% of time when present
• Phage (with cluster) where this start called: Hawkeye_31 (D2), Konstantine_33 (H1), Oaker_28 (H1),

Start 4:
• Found in 42 of 42 (100.0%) of genes in pham
• Manual Annotations of this start: 36 of 39
• Called 92.9% of time when present
• Phage (with cluster) where this start called: Adjutor_30 (D1), Barnyard_35 (H2), Beckerton_28 (H1), BigMama_27 (D1), BobtimousPrime_30 (H1), Butterscotch_29 (D1), Cborch11_29 (H1), Chill_30 (D1), Damien_28 (H1), Delton_29 (D1), Demikore_36 (U), DrLupo_37 (H2), Erk16_29 (D1), Giuseppe_29 (D1), Gumball_28 (D1), Helpful_30 (D1), KandZ_29 (D1), Labelle_35 (U), Madruga_34 (U), Megatron06_30 (H1), Mopey_29 (D1), Nova_29 (D1), PBI1_29 (D1), PLot_30 (D1), Patience_36 (U), Penelope2018_29 (D1), Phalaborwa_29 (D1), Phreeze_28 (H1), Prager_29 (D1), Predator_32 (H1), Puissant_29 (H1), SirHarley_28 (D1), SuperSonics_35 (U), SuperheroCarly_29 (D1), Thoth_29 (D1), Thumb_28 (H1), Troll4_29 (D1), Visconti_29 (D1), WaldoWhy_30 (D1),

Summary by clusters:

There are 5 clusters represented in this pham: H2, D2, H1, U, D1,

Info for manual annotations of cluster D1:
•Start number 4 was manually annotated 22 times for cluster D1.

Info for manual annotations of cluster D2:
•Start number 2 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster H1:
•Start number 2 was manually annotated 2 times for cluster H1.
•Start number 4 was manually annotated 9 times for cluster H1.

Info for manual annotations of cluster H2:
•Start number 4 was manually annotated 2 times for cluster H2.

Info for manual annotations of cluster U:
•Start number 4 was manually annotated 3 times for cluster U.

Gene Information:

Gene: Adjutor_30 Start: 22601, Stop: 24256, Start Num: 4
Candidate Starts for Adjutor_30:
(Start: 4 @22601 has 36 MA's), (33, 22991), (37, 23048), (51, 23339), (52, 23351), (69, 23594), (73, 23660), (75, 23687), (77, 23738), (80, 23834), (81, 23855), (91, 23996), (92, 24014), (97, 24086), (105, 24173), (110, 24206),

Gene: Barnyard_35 Start: 25132, Stop: 26775, Start Num: 4
Candidate Starts for Barnyard_35:
(Start: 2 @25105 has 3 MA's), (Start: 4 @25132 has 36 MA's), (6, 25159), (12, 25207), (14, 25222), (16, 25231), (18, 25249), (27, 25414), (30, 25438), (32, 25504), (34, 25528), (35, 25552), (39, 25591), (42, 25645), (44, 25660), (45, 25690), (47, 25720), (53, 25852), (55, 25879), (57, 25891), (58, 25918), (59, 25921), (66, 26032), (79, 26317), (90, 26512), (91, 26521), (94, 26566), (99, 26623), (103, 26674), (109, 26725), (111, 26737), (113, 26761),

Gene: Beckerton_28 Start: 24591, Stop: 26219, Start Num: 4
Candidate Starts for Beckerton_28:
(Start: 2 @24564 has 3 MA's), (3, 24576), (Start: 4 @24591 has 36 MA's), (11, 24663), (17, 24705), (23, 24795), (26, 24822), (27, 24873), (28, 24876), (34, 24987), (39, 25050), (60, 25392), (62, 25416), (64, 25428), (67, 25506), (76, 25677), (83, 25842), (84, 25866), (96, 26037), (98, 26061), (102, 26097), (104, 26130), (107, 26151), (108, 26157), (109, 26169), (112, 26187), (113, 26205), (114, 26208),

Gene: BigMama_27 Start: 22677, Stop: 24332, Start Num: 4
Candidate Starts for BigMama_27:
(Start: 4 @22677 has 36 MA's), (33, 23067), (37, 23124), (51, 23415), (52, 23427), (69, 23670), (73, 23736), (75, 23763), (77, 23814), (80, 23910), (81, 23931), (91, 24072), (92, 24090), (97, 24162), (105, 24249), (110, 24282),

Gene: BobtimousPrime_30 Start: 24511, Stop: 26139, Start Num: 4
Candidate Starts for BobtimousPrime_30:
(Start: 2 @24484 has 3 MA's), (3, 24496), (Start: 4 @24511 has 36 MA's), (11, 24583), (17, 24625), (23, 24715), (26, 24742), (27, 24793), (28, 24796), (34, 24907), (39, 24970), (60, 25312), (62, 25336), (64, 25348), (67, 25426), (76, 25597), (83, 25762), (84, 25786), (88, 25855), (91, 25876), (95, 25954), (96, 25957), (98, 25981), (100, 25993), (101, 26011), (102, 26017), (104, 26050), (107, 26071), (108, 26077), (109, 26089), (112, 26107), (113, 26125), (114, 26128),

Gene: Butterscotch_29 Start: 22661, Stop: 24316, Start Num: 4
Candidate Starts for Butterscotch_29:
(Start: 4 @22661 has 36 MA's), (33, 23051), (37, 23108), (51, 23399), (52, 23411), (69, 23654), (73, 23720), (75, 23747), (77, 23798), (80, 23894), (81, 23915), (91, 24056), (92, 24074), (97, 24146), (105, 24233), (110, 24266),

Gene: Cborch11_29 Start: 24053, Stop: 25681, Start Num: 4
Candidate Starts for Cborch11_29:
(Start: 2 @24026 has 3 MA's), (3, 24038), (Start: 4 @24053 has 36 MA's), (11, 24125), (17, 24167), (23, 24257), (26, 24284), (27, 24335), (28, 24338), (34, 24449), (39, 24512), (60, 24854), (62, 24878), (64, 24890), (67, 24968), (76, 25139), (83, 25304), (84, 25328), (96, 25499), (98, 25523), (102, 25559), (104, 25592), (107, 25613), (108, 25619), (109, 25631), (112, 25649), (113, 25667), (114, 25670),

Gene: Chill_30 Start: 22667, Stop: 24322, Start Num: 4
Candidate Starts for Chill_30:

(Start: 4 @22667 has 36 MA's), (33, 23057), (37, 23114), (51, 23405), (52, 23417), (69, 23660), (73, 23726), (75, 23753), (77, 23804), (80, 23900), (81, 23921), (91, 24062), (92, 24080), (97, 24152), (105, 24239), (110, 24272),

Gene: Damien_28 Start: 24054, Stop: 25682, Start Num: 4
Candidate Starts for Damien_28:
(Start: 2 @24027 has 3 MA's), (3, 24039), (Start: 4 @24054 has 36 MA's), (11, 24126), (17, 24168), (23, 24258), (26, 24285), (27, 24336), (28, 24339), (34, 24450), (39, 24513), (60, 24855), (62, 24879), (64, 24891), (67, 24969), (76, 25140), (83, 25305), (84, 25329), (96, 25500), (98, 25524), (102, 25560), (104, 25593), (107, 25614), (108, 25620), (109, 25632), (112, 25650), (113, 25668), (114, 25671),

Gene: Delton_29 Start: 22673, Stop: 24328, Start Num: 4
Candidate Starts for Delton_29:
(Start: 4 @22673 has 36 MA's), (33, 23063), (37, 23120), (51, 23411), (52, 23423), (69, 23666), (73, 23732), (75, 23759), (77, 23810), (80, 23906), (81, 23927), (87, 24026), (89, 24056), (91, 24068), (92, 24086), (93, 24110), (97, 24158), (105, 24245), (110, 24278),

Gene: Demikore_36 Start: 27099, Stop: 28742, Start Num: 4
Candidate Starts for Demikore_36:
(Start: 4 @27099 has 36 MA's), (9, 27165), (10, 27168), (15, 27192), (30, 27414), (35, 27528), (38, 27543), (39, 27567), (40, 27600), (46, 27684), (47, 27696), (48, 27747), (56, 27864), (63, 27942), (64, 27945), (76, 28197), (77, 28203), (78, 28209), (84, 28392),

Gene: DrLupo_37 Start: 25532, Stop: 27175, Start Num: 4
Candidate Starts for DrLupo_37:
(Start: 4 @25532 has 36 MA's), (11, 25604), (14, 25622), (16, 25631), (18, 25649), (21, 25721), (25, 25760), (27, 25814), (30, 25838), (31, 25865), (35, 25952), (37, 25964), (39, 25991), (42, 26045), (45, 26090), (47, 26120), (49, 26198), (53, 26252), (54, 26264), (55, 26279), (58, 26318), (59, 26321), (60, 26333), (65, 26411), (66, 26432), (70, 26516), (71, 26534), (84, 26831), (90, 26912), (91, 26921), (94, 26966), (99, 27023), (103, 27074), (111, 27137), (113, 27161),

Gene: Erk16_29 Start: 22664, Stop: 24319, Start Num: 4
Candidate Starts for Erk16_29:
(Start: 4 @22664 has 36 MA's), (33, 23054), (37, 23111), (51, 23402), (52, 23414), (69, 23657), (72, 23720), (73, 23723), (75, 23750), (77, 23801), (80, 23897), (81, 23918), (91, 24059), (92, 24077), (97, 24149), (105, 24236), (110, 24269),

Gene: Giuseppe_29 Start: 22653, Stop: 24308, Start Num: 4
Candidate Starts for Giuseppe_29:
(Start: 4 @22653 has 36 MA's), (33, 23043), (37, 23100), (51, 23391), (52, 23403), (69, 23646), (73, 23712), (75, 23739), (77, 23790), (80, 23886), (81, 23907), (87, 24006), (89, 24036), (91, 24048), (92, 24066), (93, 24090), (97, 24138), (105, 24225), (110, 24258),

Gene: Gumball_28 Start: 22611, Stop: 24266, Start Num: 4
Candidate Starts for Gumball_28:
(Start: 4 @22611 has 36 MA's), (33, 23001), (37, 23058), (51, 23349), (52, 23361), (69, 23604), (73, 23670), (75, 23697), (77, 23748), (80, 23844), (91, 24006), (92, 24024), (97, 24096), (105, 24183), (110, 24216),

Gene: Hawkeye_31 Start: 22619, Stop: 24298, Start Num: 2
Candidate Starts for Hawkeye_31:
(Start: 2 @22619 has 3 MA's), (Start: 4 @22646 has 36 MA's), (11, 22718), (14, 22736), (19, 22796), (20, 22802), (26, 22889), (34, 23054), (36, 23084), (37, 23090), (41, 23183), (49, 23354), (58, 23474),

(64, 23525), (69, 23636), (73, 23702), (77, 23780), (80, 23876), (86, 23981), (91, 24038), (97, 24128), (103, 24194), (104, 24206), (105, 24215), (106, 24224),

Gene: Helpful_30 Start: 22661, Stop: 24316, Start Num: 4
Candidate Starts for Helpful_30:
(Start: 4 @22661 has 36 MA's), (33, 23051), (37, 23108), (51, 23399), (52, 23411), (69, 23654), (73, 23720), (75, 23747), (77, 23798), (80, 23894), (81, 23915), (87, 24014), (89, 24044), (91, 24056), (92, 24074), (93, 24098), (97, 24146), (105, 24233), (110, 24266),

Gene: KandZ_29 Start: 22761, Stop: 24416, Start Num: 4
Candidate Starts for KandZ_29:
(Start: 4 @22761 has 36 MA's), (33, 23151), (37, 23208), (51, 23499), (52, 23511), (69, 23754), (73, 23820), (75, 23847), (77, 23898), (80, 23994), (81, 24015), (91, 24156), (92, 24174), (97, 24246), (105, 24333), (110, 24366),

Gene: Konstantine_33 Start: 25228, Stop: 26883, Start Num: 2
Candidate Starts for Konstantine_33:
(Start: 2 @25228 has 3 MA's), (3, 25240), (Start: 4 @25255 has 36 MA's), (11, 25327), (17, 25369), (23, 25459), (26, 25486), (27, 25537), (28, 25540), (34, 25651), (39, 25714), (60, 26056), (62, 26080), (64, 26092), (67, 26170), (76, 26341), (83, 26506), (84, 26530), (96, 26701), (98, 26725), (102, 26761), (104, 26794), (107, 26815), (108, 26821), (109, 26833), (112, 26851), (113, 26869), (114, 26872),

Gene: Labelle_35 Start: 27101, Stop: 28744, Start Num: 4
Candidate Starts for Labelle_35:
(Start: 4 @27101 has 36 MA's), (9, 27167), (10, 27170), (15, 27194), (30, 27416), (35, 27530), (38, 27545), (39, 27569), (40, 27602), (46, 27686), (47, 27698), (48, 27749), (56, 27866), (63, 27944), (64, 27947), (76, 28199), (77, 28205), (78, 28211), (84, 28394),

Gene: Madruga_34 Start: 26770, Stop: 28413, Start Num: 4
Candidate Starts for Madruga_34:
(Start: 4 @26770 has 36 MA's), (9, 26836), (10, 26839), (15, 26863), (30, 27085), (35, 27199), (38, 27214), (39, 27238), (40, 27271), (47, 27367), (48, 27418), (56, 27535), (63, 27613), (64, 27616), (76, 27868), (77, 27874), (78, 27880), (84, 28063),

Gene: Megatron06_30 Start: 24587, Stop: 26215, Start Num: 4
Candidate Starts for Megatron06_30:
(Start: 2 @24560 has 3 MA's), (3, 24572), (Start: 4 @24587 has 36 MA's), (11, 24659), (17, 24701), (23, 24791), (26, 24818), (27, 24869), (28, 24872), (34, 24983), (39, 25046), (60, 25388), (62, 25412), (64, 25424), (67, 25502), (76, 25673), (83, 25838), (84, 25862), (96, 26033), (98, 26057), (102, 26093), (104, 26126), (107, 26147), (108, 26153), (109, 26165), (112, 26183), (113, 26201), (114, 26204),

Gene: Mopey_29 Start: 22661, Stop: 24316, Start Num: 4
Candidate Starts for Mopey_29:
(Start: 4 @22661 has 36 MA's), (33, 23051), (37, 23108), (51, 23399), (52, 23411), (69, 23654), (73, 23720), (75, 23747), (77, 23798), (80, 23894), (81, 23915), (87, 24014), (89, 24044), (91, 24056), (92, 24074), (93, 24098), (97, 24146), (105, 24233), (110, 24266),

Gene: Nova_29 Start: 23088, Stop: 24743, Start Num: 4
Candidate Starts for Nova_29:
(Start: 4 @23088 has 36 MA's), (33, 23478), (37, 23535), (51, 23826), (52, 23838), (69, 24081), (72, 24144), (73, 24147), (75, 24174), (77, 24225), (80, 24321), (81, 24342), (89, 24471), (91, 24483), (92, 24501), (97, 24573), (105, 24660), (110, 24693),

Gene: Oaker_28 Start: 24284, Stop: 25939, Start Num: 2
Candidate Starts for Oaker_28:
(Start: 2 @24284 has 3 MA's), (3, 24296), (Start: 4 @24311 has 36 MA's), (11, 24383), (17, 24425), (23, 24515), (26, 24542), (27, 24593), (28, 24596), (34, 24707), (39, 24770), (60, 25112), (62, 25136), (64, 25148), (67, 25226), (76, 25397), (83, 25562), (84, 25586), (96, 25757), (98, 25781), (102, 25817), (104, 25850), (107, 25871), (108, 25877), (109, 25889), (112, 25907), (113, 25925), (114, 25928),

Gene: PBI1_29 Start: 22592, Stop: 24247, Start Num: 4
Candidate Starts for PBI1_29:
(Start: 4 @22592 has 36 MA's), (33, 22982), (37, 23039), (51, 23330), (52, 23342), (69, 23585), (73, 23651), (75, 23678), (77, 23729), (80, 23825), (81, 23846), (91, 23987), (92, 24005), (97, 24077), (105, 24164), (110, 24197),

Gene: PLot_30 Start: 22664, Stop: 24319, Start Num: 4
Candidate Starts for PLot_30:
(Start: 4 @22664 has 36 MA's), (33, 23054), (37, 23111), (51, 23402), (52, 23414), (69, 23657), (73, 23723), (75, 23750), (77, 23801), (80, 23897), (81, 23918), (91, 24059), (92, 24077), (97, 24149), (105, 24236), (110, 24269),

Gene: Patience_36 Start: 27651, Stop: 29294, Start Num: 4
Candidate Starts for Patience_36:
(Start: 4 @27651 has 36 MA's), (9, 27717), (10, 27720), (15, 27744), (30, 27966), (35, 28080), (38, 28095), (39, 28119), (40, 28152), (46, 28236), (47, 28248), (48, 28299), (56, 28416), (63, 28494), (64, 28497), (76, 28749), (77, 28755), (78, 28761), (84, 28944),

Gene: Penelope2018_29 Start: 22661, Stop: 24316, Start Num: 4
Candidate Starts for Penelope2018_29:
(Start: 4 @22661 has 36 MA's), (33, 23051), (37, 23108), (51, 23399), (52, 23411), (69, 23654), (73, 23720), (75, 23747), (77, 23798), (80, 23894), (81, 23915), (91, 24056), (92, 24074), (97, 24146), (105, 24233), (110, 24266),

Gene: Phalaborwa_29 Start: 22688, Stop: 24343, Start Num: 4
Candidate Starts for Phalaborwa_29:
(1, 22496), (Start: 4 @22688 has 36 MA's), (11, 22763), (22, 22901), (36, 23129), (37, 23135), (48, 23372), (49, 23399), (51, 23426), (52, 23438), (69, 23681), (71, 23735), (72, 23744), (73, 23747), (75, 23774), (79, 23894), (80, 23921), (91, 24083), (92, 24101), (97, 24173), (105, 24260), (110, 24293),

Gene: Phreeze_28 Start: 24054, Stop: 25682, Start Num: 4
Candidate Starts for Phreeze_28:
(Start: 2 @24027 has 3 MA's), (3, 24039), (Start: 4 @24054 has 36 MA's), (11, 24126), (17, 24168), (23, 24258), (26, 24285), (27, 24336), (28, 24339), (34, 24450), (39, 24513), (60, 24855), (62, 24879), (64, 24891), (67, 24969), (76, 25140), (83, 25305), (84, 25329), (88, 25398), (91, 25419), (95, 25497), (96, 25500), (98, 25524), (100, 25536), (101, 25554), (102, 25560), (104, 25593), (107, 25614), (108, 25620), (109, 25632), (112, 25650), (113, 25668), (114, 25671),

Gene: Prager_29 Start: 22673, Stop: 24328, Start Num: 4
Candidate Starts for Prager_29:
(Start: 4 @22673 has 36 MA's), (28, 22970), (33, 23063), (37, 23120), (51, 23411), (52, 23423), (69, 23666), (73, 23732), (75, 23759), (77, 23810), (80, 23906), (91, 24068), (92, 24086), (97, 24158), (105, 24245), (110, 24278),

Gene: Predator_32 Start: 25635, Stop: 27263, Start Num: 4
Candidate Starts for Predator_32:

(3, 25620), (Start: 4 @25635 has 36 MA's), (7, 25671), (11, 25707), (14, 25725), (16, 25734), (17, 25749), (24, 25854), (27, 25917), (29, 25923), (34, 26031), (37, 26067), (39, 26094), (41, 26130), (42, 26148), (50, 26316), (51, 26328), (61, 26451), (67, 26550), (68, 26574), (74, 26673), (76, 26721), (82, 26871), (83, 26886), (85, 26940), (91, 27000), (95, 27078), (102, 27141), (104, 27174), (107, 27195), (108, 27201), (113, 27249),

Gene: Puissant_29 Start: 24517, Stop: 26145, Start Num: 4
Candidate Starts for Puissant_29:
(3, 24502), (Start: 4 @24517 has 36 MA's), (5, 24532), (7, 24553), (8, 24571), (11, 24589), (13, 24604), (17, 24631), (23, 24721), (26, 24748), (27, 24799), (28, 24802), (33, 24892), (34, 24913), (39, 24976), (43, 25036), (50, 25198), (76, 25603), (82, 25753), (83, 25768), (91, 25882), (95, 25960), (102, 26023), (104, 26056), (109, 26095), (112, 26113), (113, 26131),

Gene: SirHarley_28 Start: 22593, Stop: 24248, Start Num: 4
Candidate Starts for SirHarley_28:
(Start: 4 @22593 has 36 MA's), (33, 22983), (37, 23040), (51, 23331), (52, 23343), (69, 23586), (73, 23652), (75, 23679), (77, 23730), (80, 23826), (91, 23988), (92, 24006), (97, 24078), (105, 24165), (110, 24198),

Gene: SuperSonics_35 Start: 26827, Stop: 28470, Start Num: 4
Candidate Starts for SuperSonics_35:
(Start: 4 @26827 has 36 MA's), (9, 26893), (10, 26896), (15, 26920), (30, 27142), (35, 27256), (38, 27271), (39, 27295), (40, 27328), (46, 27412), (47, 27424), (48, 27475), (56, 27592), (63, 27670), (64, 27673), (76, 27925), (77, 27931), (78, 27937), (84, 28120),

Gene: SuperheroCarly_29 Start: 22523, Stop: 24178, Start Num: 4
Candidate Starts for SuperheroCarly_29:
(Start: 4 @22523 has 36 MA's), (33, 22913), (37, 22970), (51, 23261), (52, 23273), (69, 23516), (73, 23582), (75, 23609), (77, 23660), (80, 23756), (81, 23777), (87, 23876), (89, 23906), (91, 23918), (92, 23936), (93, 23960), (97, 24008), (105, 24095), (110, 24128),

Gene: Thoth_29 Start: 22658, Stop: 24313, Start Num: 4
Candidate Starts for Thoth_29:
(Start: 4 @22658 has 36 MA's), (33, 23048), (37, 23105), (51, 23396), (52, 23408), (69, 23651), (73, 23717), (75, 23744), (77, 23795), (80, 23891), (81, 23912), (91, 24053), (92, 24071), (97, 24143), (105, 24230), (110, 24263),

Gene: Thumb_28 Start: 24054, Stop: 25682, Start Num: 4
Candidate Starts for Thumb_28:
(Start: 2 @24027 has 3 MA's), (3, 24039), (Start: 4 @24054 has 36 MA's), (11, 24126), (17, 24168), (23, 24258), (26, 24285), (27, 24336), (28, 24339), (34, 24450), (39, 24513), (60, 24855), (62, 24879), (64, 24891), (67, 24969), (76, 25140), (83, 25305), (84, 25329), (88, 25398), (91, 25419), (95, 25497), (96, 25500), (98, 25524), (101, 25554), (102, 25560), (104, 25593), (107, 25614), (108, 25620), (109, 25632), (112, 25650), (113, 25668), (114, 25671),

Gene: Troll4_29 Start: 22662, Stop: 24317, Start Num: 4
Candidate Starts for Troll4_29:
(Start: 4 @22662 has 36 MA's), (33, 23052), (37, 23109), (51, 23400), (52, 23412), (69, 23655), (73, 23721), (75, 23748), (77, 23799), (80, 23895), (87, 24015), (91, 24057), (92, 24075), (97, 24147), (105, 24234), (110, 24267),

Gene: Visconti_29 Start: 22671, Stop: 24326, Start Num: 4
Candidate Starts for Visconti_29:

(Start: 4 @22671 has 36 MA's), (33, 23061), (37, 23118), (51, 23409), (52, 23421), (69, 23664), (73, 23730), (75, 23757), (77, 23808), (80, 23904), (87, 24024), (91, 24066), (92, 24084), (97, 24156), (105, 24243), (110, 24276),

Gene: WaldoWhy_30 Start: 22667, Stop: 24322, Start Num: 4
Candidate Starts for WaldoWhy_30:
(Start: 4 @22667 has 36 MA's), (33, 23057), (37, 23114), (51, 23405), (52, 23417), (69, 23660), (73, 23726), (75, 23753), (77, 23804), (80, 23900), (81, 23921), (91, 24062), (92, 24080), (97, 24152), (105, 24239), (110, 24272),