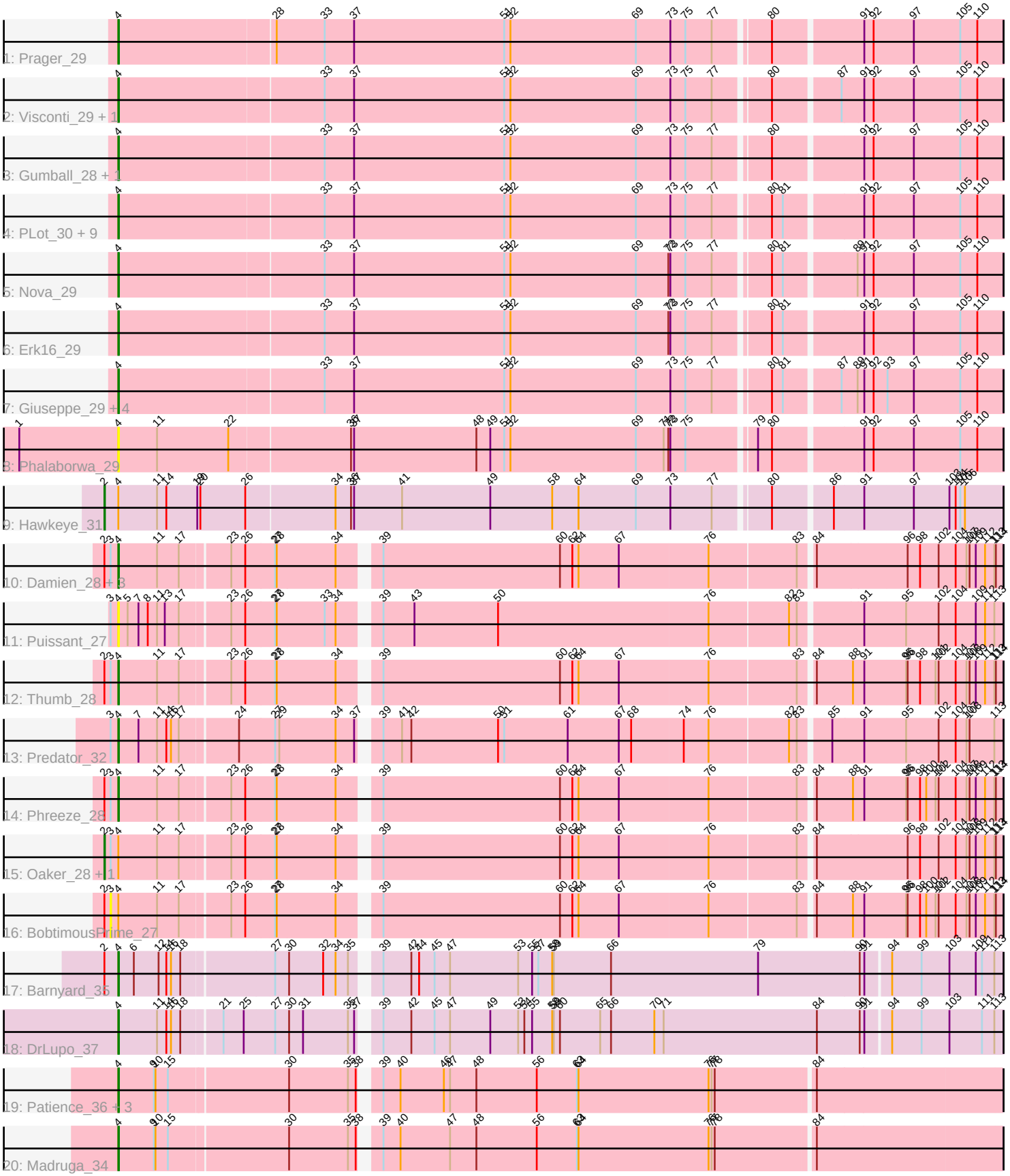
Pham 289537


1: Prager_29
2: Visconti_29 + 1
3: Gumball_28 + 1
4: PLot_30 + 9
5: Nova_29
6: Erk16_29
7: Giuseppe_29 + 4
8: Phalaborwa_29
9: Hawkeye_31
10: Damien_28 + 3
11: Puissant_27
12: Thumb_28
13: Predator_32
14: Phreeze_28
15: Oaker_28 + 1
16: BobtimousPrime_27
17: Barnyard_35
18: DrLupo_37
19: Patience_36 + 3
20: 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 289537 Report

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

Pham number 289537 has 42 members, 6 are drafts.

Phages represented in each track:
• Track 1 : Prager_29
• Track 2 : Visconti_29, Troll4_29
• Track 3 : Gumball_28, SirHarley_28
• Track 4 : PLot_30, Butterscotch_29, KandZ_29, Chill_30, WaldoWhy_30, BigMama_27, Adjutor_30, Penelope2018_29, PBI1_29, Thoth_29
• Track 5 : Nova_29
• Track 6 : Erk16_29
• Track 7 : Giuseppe_29, SuperheroCarly_30, Mopey_29, Delton_29, Helpful_30
• Track 8 : Phalaborwa_29
• Track 9 : Hawkeye_31
• Track 10 : Damien_28, Beckerton_28, Megatron06_30, Cborch11_29
• Track 11 : Puissant_27
• Track 12 : Thumb_28
• Track 13 : Predator_32
• Track 14 : Phreeze_28
• Track 15 : Oaker_28, Konstantine_33
• Track 16 : BobtimousPrime_27
• Track 17 : Barnyard_35
• Track 18 : DrLupo_37
• Track 19 : Patience_36, Demikore_36, SuperSonics_35, Labelle_35
• Track 20 : 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 33 of the 36 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Adjutor_30, Barnyard_35, Beckerton_28, BigMama_27, 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_27, SirHarley_28, SuperSonics_35, SuperheroCarly_30, Thoth_29,

Thumb_28, Troll4_29, Visconti_29, WaldoWhy_30,

Genes that have the "Most Annotated" start but do not call it:
• BobtimousPrime_27, 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 36
• Called 27.3% of time when present
• Phage (with cluster) where this start called: Hawkeye_31 (D2), Konstantine_33 (H1), Oaker_28 (H1),

Start 3:
• Found in 11 of 42 (26.2%) of genes in pham
• No Manual Annotations of this start.
• Called 9.1% of time when present
• Phage (with cluster) where this start called: BobtimousPrime_27 (H1),

Start 4:
• Found in 42 of 42 (100.0%) of genes in pham
• Manual Annotations of this start: 33 of 36
• Called 90.5% of time when present
• Phage (with cluster) where this start called: Adjutor_30 (D1), Barnyard_35 (H2), Beckerton_28 (H1), BigMama_27 (D1), 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_27 (H1), SirHarley_28 (D1), SuperSonics_35 (U), SuperheroCarly_30 (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 21 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 7 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 33 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 33 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 33 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 33 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_27 Start: 24496, Stop: 26139, Start Num: 3
Candidate Starts for BobtimousPrime_27:
(Start: 2 @24484 has 3 MA's), (3, 24496), (Start: 4 @24511 has 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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 33 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_27 Start: 24517, Stop: 26145, Start Num: 4
Candidate Starts for Puissant_27:
(3, 24502), (Start: 4 @24517 has 33 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 33 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 33 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_30 Start: 22523, Stop: 24178, Start Num: 4
Candidate Starts for SuperheroCarly_30:
(Start: 4 @22523 has 33 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 33 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 33 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 33 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 33 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 33 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),