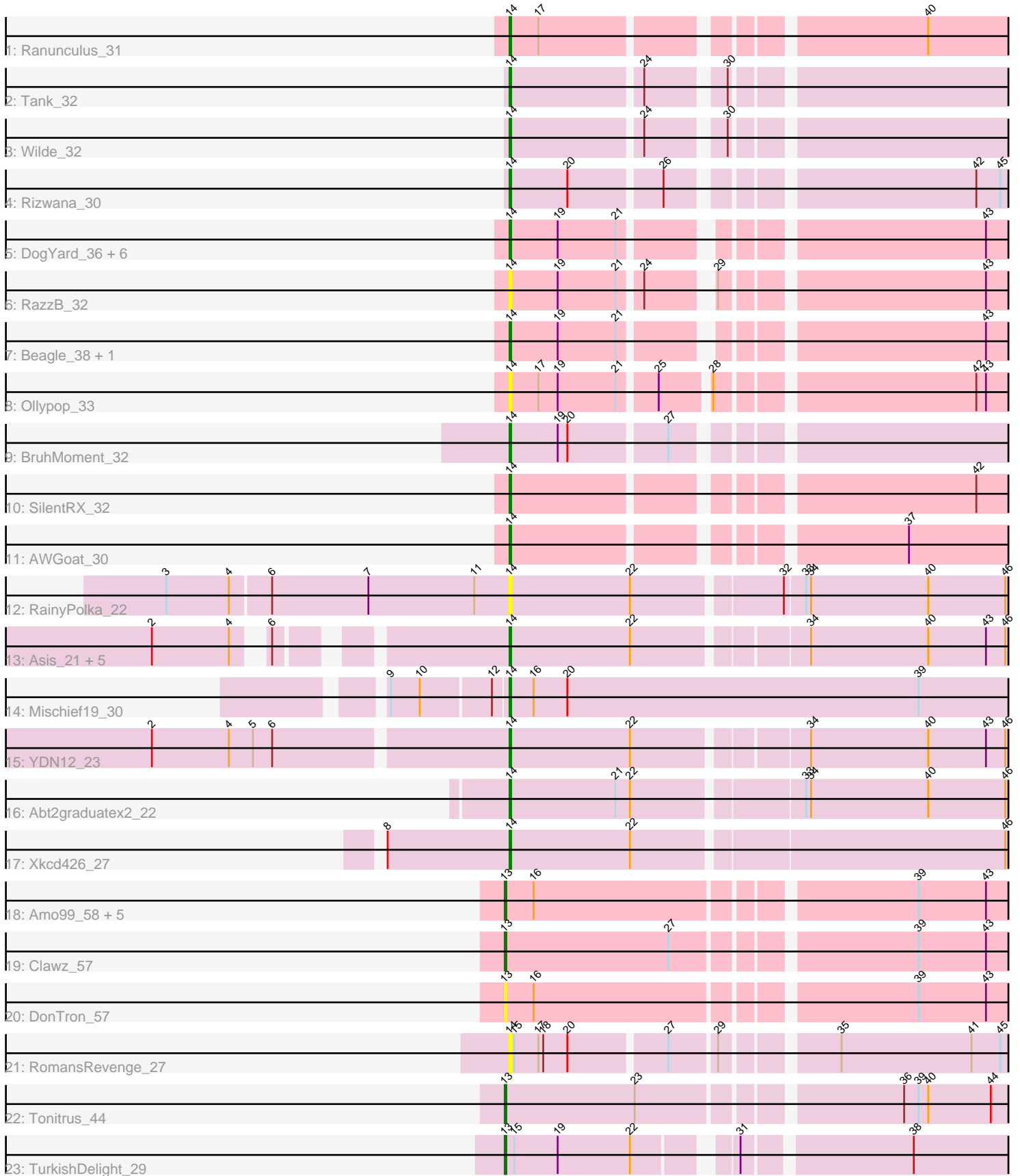


Zoomed Pham 219890



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 219890 Report

This analysis was run 03/28/25 on database version 593.

Pham number 219890 has 40 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Ranunculus_31
- Track 2 : Tank_32
- Track 3 : Wilde_32
- Track 4 : Rizwana_30
- Track 5 : DogYard_36, Pureglobe5_39, Pointis_37, Odyssey395_39, NyleyClemson_33, Forrestell_33, MellowYellow_34
- Track 6 : RazzB_32
- Track 7 : Beagle_38, Kubulix_36
- Track 8 : Ollypop_33
- Track 9 : BruhMoment_32
- Track 10 : SilentRX_32
- Track 11 : AWGoat_30
- Track 12 : RainyPolka_22
- Track 13 : Asis_21, BabyGotBac_21, BayC_21, TP1604_21, Salete_21, Maih_21
- Track 14 : Mischief19_30
- Track 15 : YDN12_23
- Track 16 : Abt2graduatex2_22
- Track 17 : Xkcd426_27
- Track 18 : Amo99_58, Jollymon_57, Sting_56, KingstonB_58, ColdSoup_58, Soos_53
- Track 19 : Clawz_57
- Track 20 : DonTron_57
- Track 21 : RomansRevenge_27
- Track 22 : Tonitrus_44
- Track 23 : TurkishDelight_29

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

The start number called the most often in the published annotations is 14, it was called in 22 of the 28 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AWGoat_30, Abt2graduatex2_22, Asis_21, BabyGotBac_21, BayC_21, Beagle_38, BruhMoment_32, DogYard_36, Forrestell_33, Kubulix_36, Maih_21,

MellowYellow_34, Mischief19_30, NyleyClemson_33, Odyssey395_39, Ollypop_33, Pointis_37, Pureglobe5_39, RainyPolka_22, Ranunculus_31, RazzB_32, Rizwana_30, RomansRevenge_27, Salete_21, SilentRX_32, TP1604_21, Tank_32, Wilde_32, Xkcd426_27, YDN12_23,

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

-

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

- Amo99_58, Clawz_57, ColdSoup_58, DonTron_57, Jollymon_57, KingstonB_58, Soos_53, Sting_56, Tonitrus_44, TurkishDelight_29,

Summary by start number:

Start 13:

- Found in 10 of 40 (25.0%) of genes in pham
- Manual Annotations of this start: 6 of 28
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amo99_58 (CP), Clawz_57 (CP), ColdSoup_58 (CP), DonTron_57 (CP), Jollymon_57 (CP), KingstonB_58 (CP), Soos_53 (CP), Sting_56 (CP), Tonitrus_44 (singleton), TurkishDelight_29 (singleton),

Start 14:

- Found in 30 of 40 (75.0%) of genes in pham
- Manual Annotations of this start: 22 of 28
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AWGoat_30 (AP4), Abt2graduatex2_22 (BG), Asis_21 (BG), BabyGotBac_21 (BG), BayC_21 (BG), Beagle_38 (AP2), BruhMoment_32 (AP3), DogYard_36 (AP2), Forrestell_33 (AP2), Kubulix_36 (AP2), Maih_21 (BG), MellowYellow_34 (AP2), Mischief19_30 (BG), NyleyClemson_33 (AP2), Odyssey395_39 (AP2), Ollypop_33 (AP2), Pointis_37 (AP2), Pureglobe5_39 (AP2), RainyPolka_22 (BG), Ranunculus_31 (AP), RazzB_32 (AP2), Rizwana_30 (AP1), RomansRevenge_27 (singleton), Salete_21 (BG), SilentRX_32 (AP4), TP1604_21 (BG), Tank_32 (AP1), Wilde_32 (AP1), Xkcd426_27 (BG), YDN12_23 (BG),

Summary by clusters:

There are 8 clusters represented in this pham: singleton, BG, AP2, AP3, AP1, AP4, AP, CP,

Info for manual annotations of cluster AP:

- Start number 14 was manually annotated 1 time for cluster AP.

Info for manual annotations of cluster AP1:

- Start number 14 was manually annotated 3 times for cluster AP1.

Info for manual annotations of cluster AP2:

- Start number 14 was manually annotated 5 times for cluster AP2.

Info for manual annotations of cluster AP3:

- Start number 14 was manually annotated 1 time for cluster AP3.

Info for manual annotations of cluster AP4:

- Start number 14 was manually annotated 2 times for cluster AP4.

Info for manual annotations of cluster BG:

- Start number 14 was manually annotated 10 times for cluster BG.

Info for manual annotations of cluster CP:

- Start number 13 was manually annotated 4 times for cluster CP.

Gene Information:

Gene: AWGoat_30 Start: 26185, Stop: 27399, Start Num: 14

Candidate Starts for AWGoat_30:

(Start: 14 @26185 has 22 MA's), (37, 26401), (47, 26476), (48, 26479), (56, 26551), (69, 26641), (72, 26662), (75, 26677), (84, 26773), (85, 26785), (122, 27016), (148, 27190), (149, 27193), (150, 27208), (151, 27220), (152, 27226), (155, 27247), (160, 27295), (162, 27307), (164, 27331), (167, 27343), (168, 27346), (173, 27370),

Gene: Abt2graduatex2_22 Start: 20847, Stop: 22187, Start Num: 14

Candidate Starts for Abt2graduatex2_22:

(Start: 14 @20847 has 22 MA's), (21, 20913), (22, 20922), (33, 21021), (34, 21024), (40, 21096), (46, 21144), (54, 21207), (59, 21255), (65, 21312), (70, 21339), (84, 21480), (86, 21495), (89, 21534), (90, 21543), (94, 21576), (119, 21744), (124, 21780), (126, 21798), (135, 21855), (152, 22002), (153, 22005), (159, 22071), (163, 22107), (174, 22152), (177, 22167),

Gene: Amo99_58 Start: 36171, Stop: 37457, Start Num: 13

Candidate Starts for Amo99_58:

(Start: 13 @36171 has 6 MA's), (16, 36189), (39, 36408), (43, 36450), (60, 36582), (78, 36723), (91, 36870), (102, 36927), (128, 37104), (135, 37155), (143, 37212), (144, 37215), (149, 37245), (150, 37260), (156, 37302), (157, 37317), (176, 37428), (178, 37443),

Gene: Asis_21 Start: 20262, Stop: 21599, Start Num: 14

Candidate Starts for Asis_21:

(1, 19857), (2, 20082), (4, 20130), (6, 20142), (Start: 14 @20262 has 22 MA's), (22, 20337), (34, 20436), (40, 20508), (43, 20544), (46, 20556), (52, 20610), (58, 20658), (65, 20724), (84, 20892), (86, 20907), (89, 20946), (90, 20955), (94, 20988), (108, 21063), (113, 21102), (115, 21126), (119, 21156), (123, 21180), (135, 21267), (145, 21357), (152, 21414), (153, 21417), (159, 21483), (174, 21564), (177, 21579),

Gene: BabyGotBac_21 Start: 20262, Stop: 21599, Start Num: 14

Candidate Starts for BabyGotBac_21:

(1, 19857), (2, 20082), (4, 20130), (6, 20142), (Start: 14 @20262 has 22 MA's), (22, 20337), (34, 20436), (40, 20508), (43, 20544), (46, 20556), (52, 20610), (58, 20658), (65, 20724), (84, 20892), (86, 20907), (89, 20946), (90, 20955), (94, 20988), (108, 21063), (113, 21102), (115, 21126), (119, 21156), (123, 21180), (135, 21267), (145, 21357), (152, 21414), (153, 21417), (159, 21483), (174, 21564), (177, 21579),

Gene: BayC_21 Start: 20262, Stop: 21599, Start Num: 14

Candidate Starts for BayC_21:

(1, 19857), (2, 20082), (4, 20130), (6, 20142), (Start: 14 @20262 has 22 MA's), (22, 20337), (34, 20436), (40, 20508), (43, 20544), (46, 20556), (52, 20610), (58, 20658), (65, 20724), (84, 20892), (86,

20907), (89, 20946), (90, 20955), (94, 20988), (108, 21063), (113, 21102), (115, 21126), (119, 21156), (123, 21180), (135, 21267), (145, 21357), (152, 21414), (153, 21417), (159, 21483), (174, 21564), (177, 21579),

Gene: Beagle_38 Start: 26417, Stop: 27625, Start Num: 14

Candidate Starts for Beagle_38:

(Start: 14 @26417 has 22 MA's), (19, 26447), (21, 26483), (43, 26678), (52, 26744), (53, 26747), (56, 26780), (57, 26783), (58, 26792), (60, 26810), (66, 26852), (70, 26870), (78, 26933), (81, 26957), (82, 26987), (84, 26999), (87, 27023), (93, 27068), (110, 27143), (127, 27281), (128, 27284), (133, 27317), (148, 27416), (156, 27476), (164, 27557), (168, 27572), (172, 27593), (174, 27599),

Gene: BruhMoment_32 Start: 25992, Stop: 27206, Start Num: 14

Candidate Starts for BruhMoment_32:

(Start: 14 @25992 has 22 MA's), (19, 26022), (20, 26028), (27, 26085), (48, 26286), (53, 26325), (56, 26358), (58, 26370), (61, 26391), (68, 26442), (70, 26448), (87, 26604), (93, 26649), (95, 26661), (116, 26790), (127, 26862), (128, 26865), (129, 26871), (130, 26874), (134, 26907), (164, 27138), (168, 27153), (172, 27174),

Gene: Clawz_57 Start: 35966, Stop: 37252, Start Num: 13

Candidate Starts for Clawz_57:

(Start: 13 @35966 has 6 MA's), (27, 36068), (39, 36203), (43, 36245), (47, 36272), (67, 36437), (73, 36476), (81, 36542), (84, 36599), (92, 36668), (93, 36671), (98, 36713), (113, 36785), (125, 36878), (128, 36899), (131, 36911), (137, 36959), (143, 37007), (144, 37010), (149, 37040), (150, 37055), (158, 37115), (161, 37151), (170, 37202), (176, 37223), (178, 37238),

Gene: ColdSoup_58 Start: 36171, Stop: 37457, Start Num: 13

Candidate Starts for ColdSoup_58:

(Start: 13 @36171 has 6 MA's), (16, 36189), (39, 36408), (43, 36450), (60, 36582), (78, 36723), (91, 36870), (102, 36927), (128, 37104), (135, 37155), (143, 37212), (144, 37215), (149, 37245), (150, 37260), (156, 37302), (157, 37317), (176, 37428), (178, 37443),

Gene: DogYard_36 Start: 26311, Stop: 27519, Start Num: 14

Candidate Starts for DogYard_36:

(Start: 14 @26311 has 22 MA's), (19, 26341), (21, 26377), (43, 26572), (52, 26638), (53, 26641), (56, 26674), (57, 26677), (58, 26686), (60, 26704), (66, 26746), (70, 26764), (78, 26827), (81, 26851), (82, 26881), (84, 26893), (87, 26917), (93, 26962), (103, 27010), (110, 27037), (127, 27175), (128, 27178), (133, 27211), (148, 27310), (156, 27370), (164, 27451), (168, 27466), (172, 27487), (174, 27493),

Gene: DonTron_57 Start: 36212, Stop: 37498, Start Num: 13

Candidate Starts for DonTron_57:

(Start: 13 @36212 has 6 MA's), (16, 36230), (39, 36449), (43, 36491), (60, 36623), (67, 36683), (78, 36764), (91, 36911), (102, 36968), (128, 37145), (135, 37196), (143, 37253), (144, 37256), (149, 37286), (150, 37301), (156, 37343), (157, 37358), (176, 37469), (178, 37484),

Gene: Forrestell_33 Start: 25104, Stop: 26312, Start Num: 14

Candidate Starts for Forrestell_33:

(Start: 14 @25104 has 22 MA's), (19, 25134), (21, 25170), (43, 25365), (52, 25431), (53, 25434), (56, 25467), (57, 25470), (58, 25479), (60, 25497), (66, 25539), (70, 25557), (78, 25620), (81, 25644), (82, 25674), (84, 25686), (87, 25710), (93, 25755), (103, 25803), (110, 25830), (127, 25968), (128, 25971), (133, 26004), (148, 26103), (156, 26163), (164, 26244), (168, 26259), (172, 26280), (174, 26286),

Gene: Jollymon_57 Start: 36171, Stop: 37457, Start Num: 13

Candidate Starts for Jollymon_57:

(Start: 13 @36171 has 6 MA's), (16, 36189), (39, 36408), (43, 36450), (60, 36582), (78, 36723), (91, 36870), (102, 36927), (128, 37104), (135, 37155), (143, 37212), (144, 37215), (149, 37245), (150, 37260), (156, 37302), (157, 37317), (176, 37428), (178, 37443),

Gene: KingstonB_58 Start: 35650, Stop: 36936, Start Num: 13

Candidate Starts for KingstonB_58:

(Start: 13 @35650 has 6 MA's), (16, 35668), (39, 35887), (43, 35929), (60, 36061), (78, 36202), (91, 36349), (102, 36406), (128, 36583), (135, 36634), (143, 36691), (144, 36694), (149, 36724), (150, 36739), (156, 36781), (157, 36796), (176, 36907), (178, 36922),

Gene: Kubulix_36 Start: 26607, Stop: 27815, Start Num: 14

Candidate Starts for Kubulix_36:

(Start: 14 @26607 has 22 MA's), (19, 26637), (21, 26673), (43, 26868), (52, 26934), (53, 26937), (56, 26970), (57, 26973), (58, 26982), (60, 27000), (66, 27042), (70, 27060), (78, 27123), (81, 27147), (82, 27177), (84, 27189), (87, 27213), (93, 27258), (110, 27333), (127, 27471), (128, 27474), (133, 27507), (148, 27606), (156, 27666), (164, 27747), (168, 27762), (172, 27783), (174, 27789),

Gene: Maih_21 Start: 20261, Stop: 21598, Start Num: 14

Candidate Starts for Maih_21:

(1, 19856), (2, 20081), (4, 20129), (6, 20141), (Start: 14 @20261 has 22 MA's), (22, 20336), (34, 20435), (40, 20507), (43, 20543), (46, 20555), (52, 20609), (58, 20657), (65, 20723), (84, 20891), (86, 20906), (89, 20945), (90, 20954), (94, 20987), (108, 21062), (113, 21101), (115, 21125), (119, 21155), (123, 21179), (135, 21266), (145, 21356), (152, 21413), (153, 21416), (159, 21482), (174, 21563), (177, 21578),

Gene: MellowYellow_34 Start: 25152, Stop: 26360, Start Num: 14

Candidate Starts for MellowYellow_34:

(Start: 14 @25152 has 22 MA's), (19, 25182), (21, 25218), (43, 25413), (52, 25479), (53, 25482), (56, 25515), (57, 25518), (58, 25527), (60, 25545), (66, 25587), (70, 25605), (78, 25668), (81, 25692), (82, 25722), (84, 25734), (87, 25758), (93, 25803), (103, 25851), (110, 25878), (127, 26016), (128, 26019), (133, 26052), (148, 26151), (156, 26211), (164, 26292), (168, 26307), (172, 26328), (174, 26334),

Gene: Mischief19_30 Start: 30827, Stop: 32191, Start Num: 14

Candidate Starts for Mischief19_30:

(9, 30758), (10, 30776), (12, 30818), (Start: 14 @30827 has 22 MA's), (16, 30842), (20, 30863), (39, 31082), (47, 31151), (52, 31190), (58, 31238), (65, 31304), (99, 31589), (101, 31598), (107, 31628), (117, 31742), (128, 31811), (129, 31817), (132, 31826), (144, 31949), (149, 31979), (158, 32048), (163, 32111),

Gene: NyleyClemson_33 Start: 25085, Stop: 26293, Start Num: 14

Candidate Starts for NyleyClemson_33:

(Start: 14 @25085 has 22 MA's), (19, 25115), (21, 25151), (43, 25346), (52, 25412), (53, 25415), (56, 25448), (57, 25451), (58, 25460), (60, 25478), (66, 25520), (70, 25538), (78, 25601), (81, 25625), (82, 25655), (84, 25667), (87, 25691), (93, 25736), (103, 25784), (110, 25811), (127, 25949), (128, 25952), (133, 25985), (148, 26084), (156, 26144), (164, 26225), (168, 26240), (172, 26261), (174, 26267),

Gene: Odyssey395_39 Start: 26436, Stop: 27644, Start Num: 14

Candidate Starts for Odyssey395_39:

(Start: 14 @26436 has 22 MA's), (19, 26466), (21, 26502), (43, 26697), (52, 26763), (53, 26766), (56, 26799), (57, 26802), (58, 26811), (60, 26829), (66, 26871), (70, 26889), (78, 26952), (81, 26976), (82, 27006), (84, 27018), (87, 27042), (93, 27087), (103, 27135), (110, 27162), (127, 27300), (128, 27303), (133, 27336), (148, 27435), (156, 27495), (164, 27576), (168, 27591), (172, 27612), (174, 27618),

Gene: Ollypop_33 Start: 25507, Stop: 26721, Start Num: 14

Candidate Starts for Ollypop_33:

(Start: 14 @25507 has 22 MA's), (17, 25525), (19, 25537), (21, 25573), (25, 25594), (28, 25621), (42, 25768), (43, 25774), (47, 25801), (52, 25840), (53, 25843), (56, 25876), (57, 25879), (66, 25948), (70, 25966), (78, 26029), (79, 26038), (82, 26083), (83, 26086), (87, 26119), (110, 26239), (127, 26377), (128, 26380), (132, 26395), (133, 26413), (134, 26422), (147, 26506), (148, 26512), (149, 26515), (164, 26653), (166, 26659), (168, 26668), (171, 26686), (174, 26695),

Gene: Pointis_37 Start: 26434, Stop: 27642, Start Num: 14

Candidate Starts for Pointis_37:

(Start: 14 @26434 has 22 MA's), (19, 26464), (21, 26500), (43, 26695), (52, 26761), (53, 26764), (56, 26797), (57, 26800), (58, 26809), (60, 26827), (66, 26869), (70, 26887), (78, 26950), (81, 26974), (82, 27004), (84, 27016), (87, 27040), (93, 27085), (103, 27133), (110, 27160), (127, 27298), (128, 27301), (133, 27334), (148, 27433), (156, 27493), (164, 27574), (168, 27589), (172, 27610), (174, 27616),

Gene: Pureglobe5_39 Start: 26617, Stop: 27825, Start Num: 14

Candidate Starts for Pureglobe5_39:

(Start: 14 @26617 has 22 MA's), (19, 26647), (21, 26683), (43, 26878), (52, 26944), (53, 26947), (56, 26980), (57, 26983), (58, 26992), (60, 27010), (66, 27052), (70, 27070), (78, 27133), (81, 27157), (82, 27187), (84, 27199), (87, 27223), (93, 27268), (103, 27316), (110, 27343), (127, 27481), (128, 27484), (133, 27517), (148, 27616), (156, 27676), (164, 27757), (168, 27772), (172, 27793), (174, 27799),

Gene: RainyPolka_22 Start: 20723, Stop: 22063, Start Num: 14

Candidate Starts for RainyPolka_22:

(3, 20513), (4, 20552), (6, 20576), (7, 20636), (11, 20702), (Start: 14 @20723 has 22 MA's), (22, 20798), (32, 20885), (33, 20897), (34, 20900), (40, 20972), (46, 21020), (51, 21071), (52, 21074), (65, 21188), (70, 21215), (76, 21272), (84, 21356), (86, 21371), (89, 21410), (112, 21563), (113, 21566), (115, 21590), (119, 21620), (135, 21731), (145, 21821), (152, 21878), (153, 21881), (159, 21947), (174, 22028),

Gene: Ranunculus_31 Start: 25649, Stop: 26857, Start Num: 14

Candidate Starts for Ranunculus_31:

(Start: 14 @25649 has 22 MA's), (17, 25667), (40, 25877), (52, 25979), (56, 26015), (60, 26045), (66, 26087), (70, 26105), (74, 26132), (81, 26192), (87, 26261), (89, 26291), (110, 26381), (133, 26555), (148, 26648), (156, 26708), (164, 26789), (168, 26804), (171, 26822), (173, 26828),

Gene: RazzB_32 Start: 24898, Stop: 26106, Start Num: 14

Candidate Starts for RazzB_32:

(Start: 14 @24898 has 22 MA's), (19, 24928), (21, 24964), (24, 24976), (29, 25009), (43, 25159), (52, 25225), (53, 25228), (56, 25261), (57, 25264), (58, 25273), (60, 25291), (66, 25333), (70, 25351), (78, 25414), (81, 25438), (82, 25468), (84, 25480), (87, 25504), (93, 25549), (103, 25597), (110, 25624), (127, 25762), (128, 25765), (133, 25798), (148, 25897), (156, 25957), (164, 26038), (168, 26053), (172, 26074), (174, 26080),

Gene: Rizwana_30 Start: 25243, Stop: 26460, Start Num: 14

Candidate Starts for Rizwana_30:

(Start: 14 @25243 has 22 MA's), (20, 25279), (26, 25333), (42, 25501), (45, 25516), (52, 25573), (53, 25576), (55, 25585), (56, 25609), (60, 25639), (70, 25702), (84, 25831), (104, 25951), (125, 26095), (127, 26113), (140, 26194), (148, 26251), (149, 26254), (152, 26287), (162, 26368), (164, 26392), (168, 26407),

Gene: RomansRevenge_27 Start: 23638, Stop: 24843, Start Num: 14

Candidate Starts for RomansRevenge_27:

(Start: 14 @23638 has 22 MA's), (15, 23641), (17, 23656), (18, 23659), (20, 23674), (27, 23731), (29, 23758), (35, 23818), (41, 23899), (45, 23917), (47, 23935), (50, 23968), (56, 24010), (58, 24022), (75, 24136), (77, 24160), (80, 24178), (82, 24214), (84, 24220), (88, 24262), (97, 24313), (113, 24388), (116, 24427), (128, 24499), (136, 24553),

Gene: Salete_21 Start: 20262, Stop: 21599, Start Num: 14

Candidate Starts for Salete_21:

(1, 19857), (2, 20082), (4, 20130), (6, 20142), (Start: 14 @20262 has 22 MA's), (22, 20337), (34, 20436), (40, 20508), (43, 20544), (46, 20556), (52, 20610), (58, 20658), (65, 20724), (84, 20892), (86, 20907), (89, 20946), (90, 20955), (94, 20988), (108, 21063), (113, 21102), (115, 21126), (119, 21156), (123, 21180), (135, 21267), (145, 21357), (152, 21414), (153, 21417), (159, 21483), (174, 21564), (177, 21579),

Gene: SilentRX_32 Start: 25897, Stop: 27111, Start Num: 14

Candidate Starts for SilentRX_32:

(Start: 14 @25897 has 22 MA's), (42, 26155), (47, 26188), (48, 26191), (56, 26263), (64, 26323), (69, 26353), (72, 26374), (75, 26389), (85, 26497), (122, 26728), (124, 26746), (128, 26770), (148, 26902), (150, 26920), (151, 26932), (152, 26938), (155, 26959), (160, 27007), (162, 27019), (164, 27043), (167, 27055), (168, 27058), (173, 27082),

Gene: Soos_53 Start: 35379, Stop: 36665, Start Num: 13

Candidate Starts for Soos_53:

(Start: 13 @35379 has 6 MA's), (16, 35397), (39, 35616), (43, 35658), (60, 35790), (78, 35931), (91, 36078), (102, 36135), (128, 36312), (135, 36363), (143, 36420), (144, 36423), (149, 36453), (150, 36468), (156, 36510), (157, 36525), (176, 36636), (178, 36651),

Gene: Sting_56 Start: 35818, Stop: 37104, Start Num: 13

Candidate Starts for Sting_56:

(Start: 13 @35818 has 6 MA's), (16, 35836), (39, 36055), (43, 36097), (60, 36229), (78, 36370), (91, 36517), (102, 36574), (128, 36751), (135, 36802), (143, 36859), (144, 36862), (149, 36892), (150, 36907), (156, 36949), (157, 36964), (176, 37075), (178, 37090),

Gene: TP1604_21 Start: 20262, Stop: 21599, Start Num: 14

Candidate Starts for TP1604_21:

(1, 19857), (2, 20082), (4, 20130), (6, 20142), (Start: 14 @20262 has 22 MA's), (22, 20337), (34, 20436), (40, 20508), (43, 20544), (46, 20556), (52, 20610), (58, 20658), (65, 20724), (84, 20892), (86, 20907), (89, 20946), (90, 20955), (94, 20988), (108, 21063), (113, 21102), (115, 21126), (119, 21156), (123, 21180), (135, 21267), (145, 21357), (152, 21414), (153, 21417), (159, 21483), (174, 21564), (177, 21579),

Gene: Tank_32 Start: 25546, Stop: 26763, Start Num: 14

Candidate Starts for Tank_32:

(Start: 14 @25546 has 22 MA's), (24, 25624), (30, 25666), (52, 25876), (53, 25879), (55, 25888), (56, 25912), (64, 25972), (68, 25999), (82, 26119), (84, 26134), (104, 26254), (148, 26554), (149, 26557), (152, 26590), (162, 26671), (164, 26695), (168, 26710),

Gene: Tonitrus_44 Start: 33595, Stop: 34905, Start Num: 13

Candidate Starts for Tonitrus_44:

(Start: 13 @33595 has 6 MA's), (23, 33676), (36, 33823), (39, 33832), (40, 33838), (44, 33877), (63, 34039), (71, 34084), (75, 34117), (80, 34162), (84, 34231), (96, 34339), (102, 34357), (118, 34471), (123, 34498), (125, 34513), (132, 34549), (137, 34594), (142, 34648), (145, 34663), (146, 34672), (152, 34723), (154, 34729), (158, 34765), (160, 34792), (164, 34828), (165, 34831), (178, 34891),

Gene: TurkishDelight_29 Start: 26684, Stop: 28108, Start Num: 13

Candidate Starts for TurkishDelight_29:

(Start: 13 @26684 has 6 MA's), (15, 26690), (19, 26717), (22, 26762), (31, 26813), (38, 26909), (49, 27002), (56, 27056), (59, 27077), (62, 27101), (76, 27215), (84, 27296), (90, 27359), (99, 27422), (105, 27458), (106, 27467), (109, 27506), (110, 27533), (111, 27575), (114, 27620), (120, 27671), (126, 27722), (128, 27728), (134, 27773), (138, 27800), (139, 27830), (141, 27839), (145, 27872), (152, 27929), (164, 28031), (169, 28049),

Gene: Wilde_32 Start: 25388, Stop: 26605, Start Num: 14

Candidate Starts for Wilde_32:

(Start: 14 @25388 has 22 MA's), (24, 25466), (30, 25508), (52, 25718), (55, 25730), (56, 25754), (64, 25814), (68, 25841), (82, 25961), (84, 25976), (104, 26096), (148, 26396), (149, 26399), (152, 26432), (162, 26513), (164, 26537), (168, 26552),

Gene: Xkcd426_27 Start: 27567, Stop: 28907, Start Num: 14

Candidate Starts for Xkcd426_27:

(8, 27492), (Start: 14 @27567 has 22 MA's), (22, 27642), (46, 27864), (50, 27912), (52, 27918), (58, 27966), (59, 27975), (61, 27987), (65, 28032), (70, 28062), (76, 28119), (84, 28203), (86, 28218), (100, 28323), (113, 28413), (115, 28437), (128, 28527), (129, 28533), (135, 28578), (139, 28626), (142, 28653), (153, 28728), (163, 28827), (175, 28875), (177, 28887),

Gene: YDN12_23 Start: 20231, Stop: 21568, Start Num: 14

Candidate Starts for YDN12_23:

(2, 20018), (4, 20066), (5, 20081), (6, 20093), (Start: 14 @20231 has 22 MA's), (22, 20306), (34, 20405), (40, 20477), (43, 20513), (46, 20525), (52, 20579), (54, 20588), (58, 20627), (65, 20693), (84, 20861), (86, 20876), (89, 20915), (90, 20924), (94, 20957), (108, 21032), (113, 21071), (119, 21125), (121, 21137), (123, 21149), (135, 21236), (145, 21326), (152, 21383), (153, 21386), (159, 21452), (177, 21548),