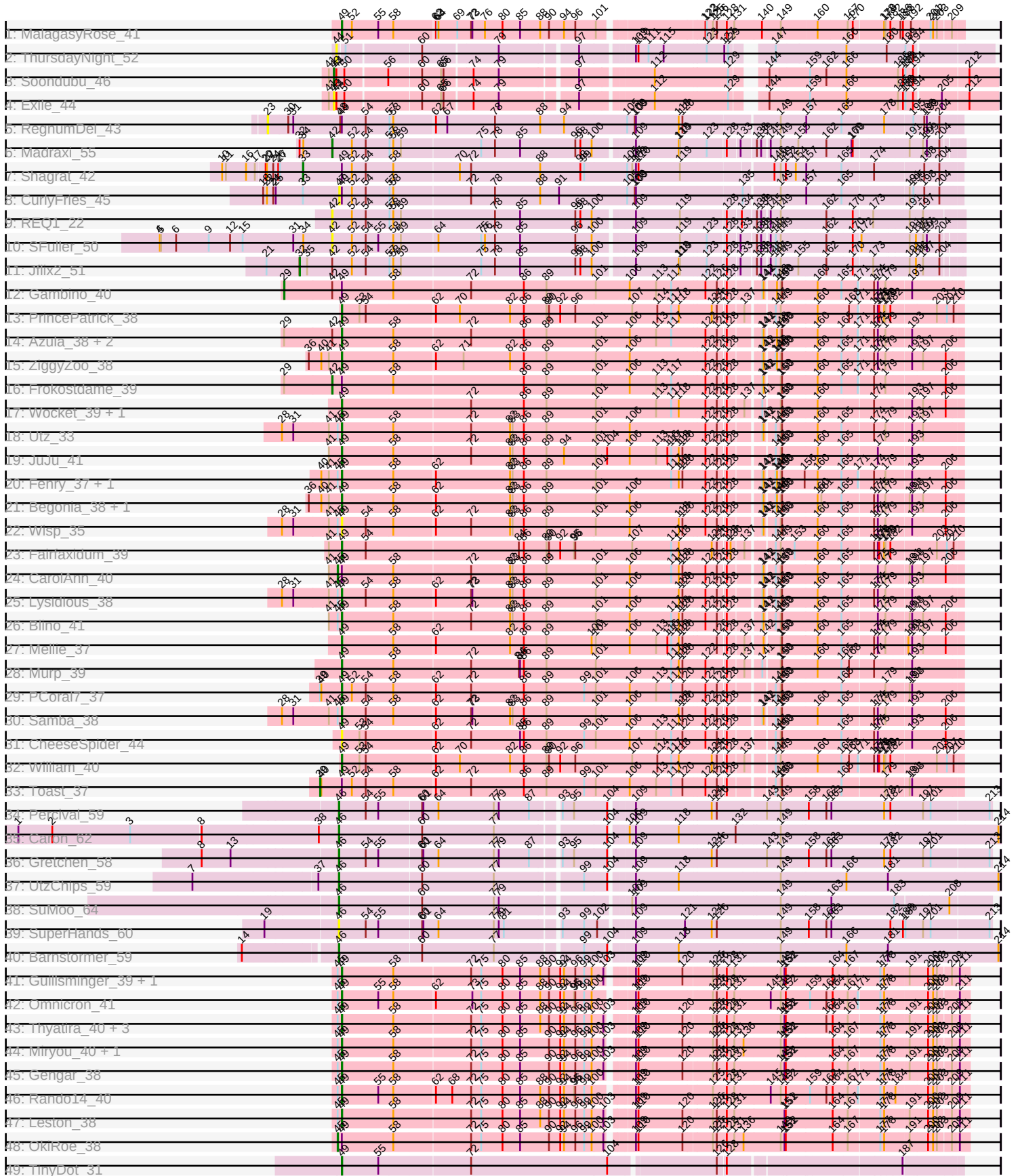


Pham 280473



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 280473 Report

This analysis was run 02/07/26 on database version 634.

Pham number 280473 has 59 members, 9 are drafts.

Phages represented in each track:

- Track 1 : MalagasyRose_41
- Track 2 : ThursdayNight_52
- Track 3 : Soondubu_46
- Track 4 : Exile_44
- Track 5 : RegnumDei_43
- Track 6 : Madraxi_55
- Track 7 : Shagrat_42
- Track 8 : CurlyFries_45
- Track 9 : REQ1_22
- Track 10 : SFuller_50
- Track 11 : Jflif2_51
- Track 12 : Gambino_40
- Track 13 : PrincePatrick_38
- Track 14 : Azula_38, MissRona_38, Blueberry_37
- Track 15 : ZiggyZoo_38
- Track 16 : Frokostdame_39
- Track 17 : Wocket_39, KappaFarmDelta_40
- Track 18 : Utz_33
- Track 19 : JuJu_41
- Track 20 : Fenry_37, Jalammah_42
- Track 21 : Begonia_38, Malachai_38
- Track 22 : Wisp_35
- Track 23 : Fairfaxidum_39
- Track 24 : CarolAnn_40
- Track 25 : Lysidious_38
- Track 26 : Blino_41
- Track 27 : Mellie_37
- Track 28 : Murp_39
- Track 29 : PCoral7_37
- Track 30 : Samba_38
- Track 31 : CheeseSpider_44
- Track 32 : William_40
- Track 33 : Toast_37
- Track 34 : Percival_59
- Track 35 : Caron_62
- Track 36 : Gretchen_58
- Track 37 : UtzChips_59

- Track 38 : SuMoo_64
- Track 39 : SuperHands_60
- Track 40 : Barnstormer_59
- Track 41 : Guillsminger_39, Paola_38
- Track 42 : Omnicron_41
- Track 43 : Thyatira_40, SoSeph_38, Waterfoul_39, Heftyboy_38
- Track 44 : Miryou_40, Feyre_38
- Track 45 : Gengar_38
- Track 46 : Rando14_40
- Track 47 : Leston_38
- Track 48 : OkiRoe_38
- Track 49 : TinyDot_31

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

The start number called the most often in the published annotations is 49, it was called in 35 of the 50 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Azula_38, Begonia_38, Blino_41, Blueberry_37, CheeseSpider_44, Fairfaxidum_39, Fenry_37, Feyre_38, Gengar_38, Guillsminger_39, Heftyboy_38, Jalammah_42, JuJu_41, KappaFarmDelta_40, Leston_38, Lysidious_38, Malachai_38, MalagasyRose_41, Mellie_37, Miryou_40, MissRona_38, Murp_39, Omnicron_41, PCoral7_37, Paola_38, PrincePatrick_38, Rando14_40, Samba_38, SoSeph_38, Thyatira_40, TinyDot_31, Utz_33, Waterfoul_39, William_40, Wisp_35, Wocket_39, ZiggyZoo_38,

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

- CarolAnn_40, CurlyFries_45, Frokostdame_39, Gambino_40, OkiRoe_38, RegnumDei_43, Shagrat_42, Toast_37,

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

- Barnstormer_59, Caron_62, Exile_44, Gretchen_58, Jflix2_51, Madraxi_55, Percival_59, REQ1_22, SFuller_50, Soondubu_46, SuMoo_64, SuperHands_60, ThursdayNight_52, UtzChips_59,

Summary by start number:

Start 23:

- Found in 1 of 59 (1.7%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: RegnumDei_43 (CF),

Start 29:

- Found in 5 of 59 (8.5%) of genes in pham
- Manual Annotations of this start: 1 of 50
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Gambino_40 (CV),

Start 32:

- Found in 2 of 59 (3.4%) of genes in pham
- Manual Annotations of this start: 1 of 50
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Jflix2_51 (CF),

Start 33:

- Found in 2 of 59 (3.4%) of genes in pham
- Manual Annotations of this start: 1 of 50
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Shagrat_42 (CF),

Start 39:

- Found in 2 of 59 (3.4%) of genes in pham
- Manual Annotations of this start: 1 of 50
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Toast_37 (CV),

Start 42:

- Found in 9 of 59 (15.3%) of genes in pham
- Manual Annotations of this start: 2 of 50
- Called 44.4% of time when present
- Phage (with cluster) where this start called: Frokostdame_39 (CV), Madraxi_55 (CF), REQ1_22 (CF), SFuller_50 (CF),

Start 43:

- Found in 2 of 59 (3.4%) of genes in pham
- Manual Annotations of this start: 1 of 50
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Exile_44 (AZ6), Soondubu_46 (AZ6),

Start 44:

- Found in 3 of 59 (5.1%) of genes in pham
- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: ThursdayNight_52 (AZ),

Start 45:

- Found in 21 of 59 (35.6%) of genes in pham
- Manual Annotations of this start: 2 of 50
- Called 9.5% of time when present
- Phage (with cluster) where this start called: CarolAnn_40 (CV), OkiRoe_38 (K5),

Start 46:

- Found in 7 of 59 (11.9%) of genes in pham
- Manual Annotations of this start: 6 of 50
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Barnstormer_59 (EH), Caron_62 (EH), Gretchen_58 (EH), Percival_59 (EH), SuMoo_64 (EH), SuperHands_60 (EH), UtzChips_59 (EH),

Start 47:

- Found in 1 of 59 (1.7%) of genes in pham

- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CurlyFries_45 (CF),

Start 49:

- Found in 45 of 59 (76.3%) of genes in pham
- Manual Annotations of this start: 35 of 50
- Called 82.2% of time when present
- Phage (with cluster) where this start called: Azula_38 (CV), Begonia_38 (CV), Blino_41 (CV), Blueberry_37 (CV), CheeseSpider_44 (CV), Fairfaxidum_39 (CV), Ferry_37 (CV), Feyre_38 (K5), Gengar_38 (K5), Guillsminger_39 (K5), Heftyboy_38 (K5), Jalammah_42 (CV), JuJu_41 (CV), KappaFarmDelta_40 (CV), Leston_38 (K5), Lysidious_38 (CV), Malachai_38 (CV), MalagasyRose_41 (AG), Mellie_37 (CV), Miryou_40 (K5), MissRona_38 (CV), Murp_39 (CV), Omnicron_41 (K5), PCoral7_37 (CV), Paola_38 (K5), PrincePatrick_38 (CV), Rando14_40 (K5), Samba_38 (CV), SoSeph_38 (K5), Thyatira_40 (K5), TinyDot_31 (singleton), Utz_33 (CV), Waterfoul_39 (K5), William_40 (CV), Wisp_35 (CV), Wocket_39 (CV), ZiggyZoo_38 (CV),

Summary by clusters:

There are 8 clusters represented in this pham: singleton, EH, AG, CF, K5, AZ, CV, AZ6,

Info for manual annotations of cluster AG:

- Start number 49 was manually annotated 1 time for cluster AG.

Info for manual annotations of cluster AZ6:

- Start number 43 was manually annotated 1 time for cluster AZ6.

Info for manual annotations of cluster CF:

- Start number 32 was manually annotated 1 time for cluster CF.
- Start number 33 was manually annotated 1 time for cluster CF.
- Start number 42 was manually annotated 1 time for cluster CF.

Info for manual annotations of cluster CV:

- Start number 29 was manually annotated 1 time for cluster CV.
- Start number 39 was manually annotated 1 time for cluster CV.
- Start number 42 was manually annotated 1 time for cluster CV.
- Start number 45 was manually annotated 1 time for cluster CV.
- Start number 49 was manually annotated 21 times for cluster CV.

Info for manual annotations of cluster EH:

- Start number 46 was manually annotated 6 times for cluster EH.

Info for manual annotations of cluster K5:

- Start number 45 was manually annotated 1 time for cluster K5.
- Start number 49 was manually annotated 12 times for cluster K5.

Gene Information:

Gene: Azula_38 Start: 30375, Stop: 31766, Start Num: 49

Candidate Starts for Azula_38:

(Start: 29 @30240 has 1 MA's), (Start: 42 @30354 has 2 MA's), (Start: 49 @30375 has 35 MA's), (58, 30495), (72, 30672), (86, 30798), (89, 30852), (101, 30969), (106, 31047), (113, 31110), (117, 31146), (122, 31224), (126, 31251), (128, 31266), (141, 31332), (142, 31335), (148, 31359), (149, 31368), (150, 31371), (160, 31449), (165, 31506), (171, 31542), (174, 31575), (175, 31584), (179, 31602), (193, 31653),

Gene: Barnstormer_59 Start: 38306, Stop: 39811, Start Num: 46

Candidate Starts for Barnstormer_59:

(14, 38096), (Start: 46 @38306 has 6 MA's), (60, 38498), (77, 38669), (99, 38861), (104, 38915), (109, 38963), (118, 39065), (149, 39302), (166, 39452), (181, 39551), (214, 39806),

Gene: Begonia_38 Start: 31872, Stop: 33263, Start Num: 49

Candidate Starts for Begonia_38:

(36, 31794), (40, 31824), (41, 31842), (Start: 49 @31872 has 35 MA's), (58, 31992), (62, 32085), (82, 32262), (83, 32268), (86, 32295), (89, 32349), (101, 32466), (106, 32544), (122, 32721), (126, 32748), (128, 32763), (141, 32829), (142, 32832), (147, 32853), (148, 32856), (149, 32865), (150, 32868), (160, 32946), (161, 32955), (165, 33003), (174, 33072), (175, 33081), (179, 33099), (191, 33144), (193, 33150), (197, 33171), (206, 33225),

Gene: Blino_41 Start: 33377, Stop: 34768, Start Num: 49

Candidate Starts for Blino_41:

(41, 33347), (Start: 45 @33368 has 2 MA's), (Start: 49 @33377 has 35 MA's), (58, 33497), (72, 33674), (82, 33767), (83, 33773), (86, 33800), (89, 33854), (101, 33971), (106, 34049), (117, 34148), (118, 34166), (120, 34175), (122, 34226), (126, 34253), (128, 34268), (141, 34334), (142, 34337), (147, 34358), (149, 34370), (150, 34373), (160, 34451), (165, 34508), (175, 34586), (179, 34604), (191, 34649), (193, 34655), (197, 34676), (206, 34730),

Gene: Blueberry_37 Start: 30375, Stop: 31766, Start Num: 49

Candidate Starts for Blueberry_37:

(Start: 29 @30240 has 1 MA's), (Start: 42 @30354 has 2 MA's), (Start: 49 @30375 has 35 MA's), (58, 30495), (72, 30672), (86, 30798), (89, 30852), (101, 30969), (106, 31047), (113, 31110), (117, 31146), (122, 31224), (126, 31251), (128, 31266), (141, 31332), (142, 31335), (148, 31359), (149, 31368), (150, 31371), (160, 31449), (165, 31506), (171, 31542), (174, 31575), (175, 31584), (179, 31602), (193, 31653),

Gene: CarolAnn_40 Start: 33367, Stop: 34767, Start Num: 45

Candidate Starts for CarolAnn_40:

(41, 33346), (Start: 45 @33367 has 2 MA's), (Start: 49 @33376 has 35 MA's), (58, 33496), (72, 33673), (82, 33766), (83, 33772), (86, 33799), (89, 33853), (101, 33970), (106, 34048), (117, 34147), (118, 34165), (120, 34174), (122, 34225), (126, 34252), (128, 34267), (141, 34333), (142, 34336), (147, 34357), (149, 34369), (150, 34372), (160, 34450), (165, 34507), (175, 34585), (179, 34603), (191, 34648), (193, 34654), (197, 34675), (206, 34729),

Gene: Caron_62 Start: 38824, Stop: 40329, Start Num: 46

Candidate Starts for Caron_62:

(1, 38068), (2, 38149), (3, 38335), (8, 38500), (38, 38776), (Start: 46 @38824 has 6 MA's), (60, 39016), (77, 39187), (104, 39433), (106, 39466), (109, 39481), (118, 39583), (132, 39715), (149, 39820), (214, 40324),

Gene: CheeseSpider_44 Start: 30163, Stop: 31554, Start Num: 49

Candidate Starts for CheeseSpider_44:

(Start: 49 @30163 has 35 MA's), (53, 30205), (54, 30220), (62, 30376), (72, 30460), (85, 30577), (86, 30586), (89, 30640), (99, 30730), (101, 30757), (106, 30835), (113, 30898), (117, 30934), (120, 30961), (122, 31012), (126, 31039), (128, 31054), (147, 31144), (149, 31156), (150, 31159), (165, 31294), (174, 31363), (175, 31372), (193, 31441), (206, 31516),

Gene: CurlyFries_45 Start: 31973, Stop: 33400, Start Num: 47

Candidate Starts for CurlyFries_45:

(18, 31793), (22, 31802), (24, 31817), (25, 31823), (Start: 33 @31886 has 1 MA's), (47, 31973), (Start: 49 @31979 has 35 MA's), (52, 32003), (54, 32036), (57, 32090), (58, 32099), (72, 32279), (78, 32336), (88, 32444), (91, 32489), (105, 32651), (108, 32669), (109, 32672), (135, 32918), (149, 32999), (157, 33059), (165, 33140), (191, 33281), (195, 33290), (198, 33314), (204, 33350),

Gene: Exile_44 Start: 37249, Stop: 38688, Start Num: 43

Candidate Starts for Exile_44:

(41, 37237), (Start: 43 @37249 has 1 MA's), (44, 37255), (50, 37273), (60, 37441), (65, 37486), (66, 37492), (74, 37552), (79, 37612), (97, 37780), (112, 37939), (129, 38107), (144, 38161), (159, 38254), (166, 38341), (185, 38464), (188, 38476), (189, 38482), (194, 38500), (205, 38560), (212, 38620),

Gene: Fairfaxidum_39 Start: 30789, Stop: 32177, Start Num: 49

Candidate Starts for Fairfaxidum_39:

(41, 30759), (Start: 49 @30789 has 35 MA's), (54, 30846), (84, 31200), (86, 31212), (89, 31266), (90, 31272), (92, 31299), (95, 31332), (96, 31335), (107, 31467), (117, 31560), (118, 31578), (124, 31653), (126, 31665), (128, 31680), (130, 31689), (137, 31716), (147, 31770), (149, 31782), (153, 31812), (160, 31863), (165, 31920), (174, 31989), (175, 31998), (176, 32001), (178, 32013), (179, 32016), (182, 32025), (203, 32121), (207, 32142), (210, 32157),

Gene: Fenry_37 Start: 30762, Stop: 32153, Start Num: 49

Candidate Starts for Fenry_37:

(40, 30714), (41, 30732), (Start: 45 @30753 has 2 MA's), (Start: 49 @30762 has 35 MA's), (58, 30882), (62, 30975), (82, 31152), (83, 31158), (86, 31185), (89, 31239), (101, 31356), (117, 31533), (118, 31551), (120, 31560), (122, 31611), (126, 31638), (128, 31653), (141, 31719), (142, 31722), (147, 31743), (148, 31746), (149, 31755), (150, 31758), (156, 31809), (160, 31836), (165, 31893), (171, 31929), (174, 31962), (179, 31989), (193, 32040), (206, 32115),

Gene: Feyre_38 Start: 31236, Stop: 32642, Start Num: 49

Candidate Starts for Feyre_38:

(Start: 45 @31227 has 2 MA's), (Start: 49 @31236 has 35 MA's), (58, 31356), (72, 31533), (75, 31557), (80, 31608), (85, 31650), (90, 31719), (92, 31746), (94, 31755), (96, 31782), (99, 31803), (100, 31821), (103, 31848), (109, 31893), (110, 31899), (120, 32004), (125, 32070), (126, 32079), (128, 32100), (131, 32118), (136, 32139), (149, 32226), (151, 32235), (152, 32238), (164, 32346), (167, 32382), (177, 32454), (178, 32463), (191, 32514), (200, 32553), (202, 32565), (203, 32574), (209, 32604), (211, 32619),

Gene: Frokostdame_39 Start: 30677, Stop: 32089, Start Num: 42

Candidate Starts for Frokostdame_39:

(Start: 29 @30563 has 1 MA's), (Start: 42 @30677 has 2 MA's), (Start: 49 @30698 has 35 MA's), (58, 30818), (86, 31121), (89, 31175), (101, 31292), (106, 31370), (113, 31433), (117, 31469), (122, 31547), (126, 31574), (128, 31589), (141, 31655), (142, 31658), (149, 31691), (150, 31694), (160, 31772), (165, 31829), (171, 31865), (174, 31898), (179, 31925), (206, 32051),

Gene: Gambino_40 Start: 30240, Stop: 31766, Start Num: 29

Candidate Starts for Gambino_40:

(Start: 29 @30240 has 1 MA's), (Start: 42 @30354 has 2 MA's), (Start: 49 @30375 has 35 MA's), (58, 30495), (72, 30672), (86, 30798), (89, 30852), (101, 30969), (106, 31047), (113, 31110), (117, 31146), (122, 31224), (126, 31251), (128, 31266), (141, 31332), (142, 31335), (148, 31359), (149, 31368), (150, 31371), (160, 31449), (165, 31506), (171, 31542), (174, 31575), (175, 31584), (179, 31602), (193, 31653),

Gene: Gengar_38 Start: 31346, Stop: 32752, Start Num: 49

Candidate Starts for Gengar_38:

(Start: 45 @31337 has 2 MA's), (Start: 49 @31346 has 35 MA's), (58, 31466), (72, 31643), (75, 31667), (80, 31718), (85, 31760), (90, 31829), (92, 31856), (94, 31865), (96, 31892), (99, 31913), (100, 31931), (103, 31958), (109, 32003), (110, 32009), (120, 32114), (125, 32180), (126, 32189), (128, 32210), (131, 32228), (149, 32336), (151, 32345), (152, 32348), (164, 32456), (167, 32492), (177, 32564), (178, 32573), (191, 32624), (200, 32663), (202, 32675), (203, 32684), (209, 32714), (211, 32729),

Gene: Gretchen_58 Start: 38919, Stop: 40406, Start Num: 46

Candidate Starts for Gretchen_58:

(8, 38601), (13, 38670), (Start: 46 @38919 has 6 MA's), (54, 38982), (55, 39012), (60, 39111), (61, 39114), (64, 39150), (77, 39282), (79, 39294), (87, 39366), (93, 39423), (95, 39450), (104, 39528), (109, 39576), (124, 39753), (126, 39765), (143, 39885), (149, 39918), (158, 39978), (162, 40020), (163, 40032), (178, 40158), (182, 40173), (197, 40251), (201, 40269), (213, 40401),

Gene: Guillsminger_39 Start: 31317, Stop: 32723, Start Num: 49

Candidate Starts for Guillsminger_39:

(Start: 45 @31308 has 2 MA's), (Start: 49 @31317 has 35 MA's), (58, 31437), (72, 31614), (75, 31638), (80, 31689), (85, 31731), (88, 31779), (90, 31800), (92, 31827), (94, 31836), (96, 31863), (99, 31884), (100, 31902), (103, 31929), (109, 31974), (110, 31980), (120, 32085), (125, 32151), (126, 32160), (128, 32181), (131, 32199), (149, 32307), (151, 32316), (152, 32319), (164, 32427), (167, 32463), (177, 32535), (178, 32544), (191, 32595), (200, 32634), (202, 32646), (203, 32655), (209, 32685), (211, 32700),

Gene: Heftyboy_38 Start: 31463, Stop: 32869, Start Num: 49

Candidate Starts for Heftyboy_38:

(Start: 45 @31454 has 2 MA's), (Start: 49 @31463 has 35 MA's), (58, 31583), (72, 31760), (75, 31784), (80, 31835), (85, 31877), (88, 31925), (90, 31946), (92, 31973), (94, 31982), (96, 32009), (99, 32030), (100, 32048), (103, 32075), (109, 32120), (110, 32126), (120, 32231), (125, 32297), (126, 32306), (128, 32327), (131, 32345), (149, 32453), (151, 32462), (152, 32465), (162, 32561), (164, 32573), (167, 32609), (177, 32681), (178, 32690), (191, 32741), (200, 32780), (202, 32792), (203, 32801), (209, 32831), (211, 32846),

Gene: Jalammah_42 Start: 32075, Stop: 33466, Start Num: 49

Candidate Starts for Jalammah_42:

(40, 32027), (41, 32045), (Start: 45 @32066 has 2 MA's), (Start: 49 @32075 has 35 MA's), (58, 32195), (62, 32288), (82, 32465), (83, 32471), (86, 32498), (89, 32552), (101, 32669), (117, 32846), (118, 32864), (120, 32873), (122, 32924), (126, 32951), (128, 32966), (141, 33032), (142, 33035), (147, 33056), (148, 33059), (149, 33068), (150, 33071), (156, 33122), (160, 33149), (165, 33206), (171, 33242), (174, 33275), (179, 33302), (193, 33353), (206, 33428),

Gene: Jflix2_51 Start: 35443, Stop: 36906, Start Num: 32

Candidate Starts for Jflix2_51:

(21, 35365), (Start: 32 @35443 has 1 MA's), (35, 35461), (Start: 42 @35521 has 2 MA's), (52, 35566), (54, 35596), (57, 35650), (58, 35659), (59, 35677), (75, 35860), (78, 35893), (85, 35953), (96, 36085), (98, 36097), (100, 36124), (109, 36208), (118, 36310), (119, 36313), (123, 36373), (128, 36412), (133, 36439), (138, 36469), (139, 36475), (145, 36490), (147, 36502), (149, 36514), (155, 36556), (162,

36619), (170, 36679), (173, 36721), (191, 36796), (196, 36808), (197, 36823), (204, 36862),

Gene: JuJu_41 Start: 31203, Stop: 32594, Start Num: 49

Candidate Starts for JuJu_41:

(41, 31173), (Start: 49 @31203 has 35 MA's), (58, 31323), (72, 31500), (82, 31593), (83, 31599), (86, 31626), (89, 31680), (94, 31722), (101, 31797), (104, 31824), (106, 31875), (113, 31938), (116, 31965), (117, 31974), (118, 31992), (120, 32001), (122, 32052), (126, 32079), (128, 32094), (147, 32184), (149, 32196), (150, 32199), (160, 32277), (165, 32334), (175, 32412), (193, 32481),

Gene: KappaFarmDelta_40 Start: 29698, Stop: 31089, Start Num: 49

Candidate Starts for KappaFarmDelta_40:

(Start: 49 @29698 has 35 MA's), (72, 29995), (86, 30121), (89, 30175), (101, 30292), (113, 30433), (117, 30469), (118, 30487), (122, 30547), (126, 30574), (128, 30589), (137, 30625), (141, 30655), (149, 30691), (150, 30694), (160, 30772), (174, 30898), (193, 30976), (197, 30997), (206, 31051),

Gene: Leston_38 Start: 31447, Stop: 32853, Start Num: 49

Candidate Starts for Leston_38:

(Start: 45 @31438 has 2 MA's), (Start: 49 @31447 has 35 MA's), (58, 31567), (72, 31744), (75, 31768), (80, 31819), (85, 31861), (88, 31909), (90, 31930), (92, 31957), (94, 31966), (96, 31993), (99, 32014), (100, 32032), (103, 32059), (109, 32104), (110, 32110), (120, 32215), (125, 32281), (126, 32290), (128, 32311), (131, 32329), (151, 32446), (152, 32449), (164, 32557), (167, 32593), (177, 32665), (178, 32674), (191, 32725), (200, 32764), (202, 32776), (203, 32785), (209, 32815), (211, 32830),

Gene: Lysidious_38 Start: 30792, Stop: 32183, Start Num: 49

Candidate Starts for Lysidious_38:

(28, 30651), (31, 30678), (41, 30762), (Start: 45 @30783 has 2 MA's), (Start: 49 @30792 has 35 MA's), (54, 30849), (58, 30912), (62, 31005), (72, 31089), (73, 31092), (82, 31182), (83, 31188), (86, 31215), (89, 31269), (101, 31386), (106, 31464), (118, 31581), (120, 31590), (122, 31641), (126, 31668), (128, 31683), (141, 31749), (142, 31752), (147, 31773), (149, 31785), (150, 31788), (160, 31866), (165, 31923), (174, 31992), (175, 32001), (179, 32019), (193, 32070),

Gene: Madraxi_55 Start: 38153, Stop: 39541, Start Num: 42

Candidate Starts for Madraxi_55:

(Start: 32 @38075 has 1 MA's), (34, 38084), (Start: 42 @38153 has 2 MA's), (52, 38198), (54, 38228), (57, 38282), (58, 38291), (59, 38309), (75, 38492), (78, 38525), (85, 38585), (96, 38717), (98, 38729), (100, 38756), (109, 38840), (118, 38942), (119, 38945), (123, 39005), (128, 39044), (133, 39071), (138, 39101), (139, 39107), (145, 39122), (149, 39146), (155, 39188), (162, 39251), (169, 39311), (170, 39314), (191, 39431), (197, 39458), (199, 39467), (204, 39497),

Gene: Malachai_38 Start: 31872, Stop: 33263, Start Num: 49

Candidate Starts for Malachai_38:

(36, 31794), (40, 31824), (41, 31842), (Start: 49 @31872 has 35 MA's), (58, 31992), (62, 32085), (82, 32262), (83, 32268), (86, 32295), (89, 32349), (101, 32466), (106, 32544), (122, 32721), (126, 32748), (128, 32763), (141, 32829), (142, 32832), (147, 32853), (148, 32856), (149, 32865), (150, 32868), (160, 32946), (161, 32955), (165, 33003), (174, 33072), (175, 33081), (179, 33099), (191, 33144), (193, 33150), (197, 33171), (206, 33225),

Gene: MalagasyRose_41 Start: 30932, Stop: 32326, Start Num: 49

Candidate Starts for MalagasyRose_41:

(Start: 49 @30932 has 35 MA's), (52, 30956), (55, 31019), (58, 31052), (62, 31145), (63, 31148), (64, 31151), (69, 31196), (72, 31229), (73, 31232), (76, 31262), (80, 31304), (85, 31346), (88, 31394), (90, 31415), (94, 31451), (96, 31478), (101, 31526), (122, 31748), (123, 31751), (125, 31766), (126, 31775), (128, 31796), (131, 31814), (140, 31877), (149, 31922), (160, 32006), (167, 32075), (170,

32087), (178, 32156), (179, 32159), (182, 32168), (186, 32189), (188, 32195), (192, 32210), (201, 32255), (202, 32261), (203, 32270), (209, 32300),

Gene: Mellie_37 Start: 29588, Stop: 30979, Start Num: 49

Candidate Starts for Mellie_37:

(Start: 49 @29588 has 35 MA's), (58, 29708), (62, 29801), (82, 29978), (86, 30011), (89, 30065), (100, 30173), (101, 30182), (106, 30260), (113, 30323), (116, 30350), (117, 30359), (118, 30377), (120, 30386), (126, 30464), (128, 30479), (137, 30515), (142, 30548), (149, 30581), (150, 30584), (160, 30662), (165, 30719), (174, 30788), (175, 30797), (179, 30815), (190, 30857), (193, 30866), (197, 30887), (206, 30941),

Gene: Miryou_40 Start: 33649, Stop: 35055, Start Num: 49

Candidate Starts for Miryou_40:

(Start: 45 @33640 has 2 MA's), (Start: 49 @33649 has 35 MA's), (58, 33769), (72, 33946), (75, 33970), (80, 34021), (85, 34063), (90, 34132), (92, 34159), (94, 34168), (96, 34195), (99, 34216), (100, 34234), (103, 34261), (109, 34306), (110, 34312), (120, 34417), (125, 34483), (126, 34492), (128, 34513), (131, 34531), (136, 34552), (149, 34639), (151, 34648), (152, 34651), (164, 34759), (167, 34795), (177, 34867), (178, 34876), (191, 34927), (200, 34966), (202, 34978), (203, 34987), (209, 35017), (211, 35032),

Gene: MissRona_38 Start: 30376, Stop: 31767, Start Num: 49

Candidate Starts for MissRona_38:

(Start: 29 @30241 has 1 MA's), (Start: 42 @30355 has 2 MA's), (Start: 49 @30376 has 35 MA's), (58, 30496), (72, 30673), (86, 30799), (89, 30853), (101, 30970), (106, 31048), (113, 31111), (117, 31147), (122, 31225), (126, 31252), (128, 31267), (141, 31333), (142, 31336), (148, 31360), (149, 31369), (150, 31372), (160, 31450), (165, 31507), (171, 31543), (174, 31576), (175, 31585), (179, 31603), (193, 31654),

Gene: Murp_39 Start: 32170, Stop: 33561, Start Num: 49

Candidate Starts for Murp_39:

(Start: 49 @32170 has 35 MA's), (58, 32290), (72, 32467), (84, 32581), (85, 32584), (86, 32593), (89, 32647), (101, 32764), (117, 32941), (118, 32959), (120, 32968), (122, 33019), (128, 33061), (137, 33097), (141, 33127), (149, 33163), (150, 33166), (160, 33244), (165, 33301), (168, 33316), (174, 33370), (193, 33448),

Gene: OkiRoe_38 Start: 31310, Stop: 32725, Start Num: 45

Candidate Starts for OkiRoe_38:

(Start: 45 @31310 has 2 MA's), (Start: 49 @31319 has 35 MA's), (58, 31439), (72, 31616), (75, 31640), (80, 31691), (85, 31733), (90, 31802), (92, 31829), (94, 31838), (96, 31865), (99, 31886), (100, 31904), (103, 31931), (109, 31976), (110, 31982), (120, 32087), (125, 32153), (126, 32162), (128, 32183), (131, 32201), (136, 32222), (149, 32309), (151, 32318), (152, 32321), (164, 32429), (167, 32465), (177, 32537), (178, 32546), (191, 32597), (200, 32636), (202, 32648), (203, 32657), (209, 32687), (211, 32702),

Gene: Omnicron_41 Start: 30937, Stop: 32343, Start Num: 49

Candidate Starts for Omnicron_41:

(Start: 45 @30928 has 2 MA's), (Start: 49 @30937 has 35 MA's), (55, 31024), (58, 31057), (62, 31150), (73, 31237), (75, 31258), (80, 31309), (85, 31351), (88, 31399), (90, 31420), (92, 31447), (94, 31456), (95, 31480), (96, 31483), (99, 31504), (100, 31522), (109, 31594), (110, 31600), (125, 31771), (126, 31780), (128, 31801), (131, 31819), (145, 31903), (149, 31927), (152, 31939), (159, 31996), (162, 32035), (164, 32047), (167, 32083), (171, 32107), (177, 32155), (178, 32164), (200, 32254), (202, 32266), (203, 32275), (211, 32320),

Gene: PCoral7_37 Start: 30351, Stop: 31742, Start Num: 49

Candidate Starts for PCoral7_37:

(Start: 39 @30300 has 1 MA's), (40, 30303), (Start: 49 @30351 has 35 MA's), (52, 30375), (54, 30408), (58, 30471), (62, 30564), (72, 30648), (86, 30774), (89, 30828), (99, 30918), (101, 30945), (106, 31023), (113, 31086), (117, 31122), (120, 31149), (122, 31200), (126, 31227), (128, 31242), (147, 31332), (149, 31344), (150, 31347), (165, 31482), (179, 31578), (191, 31623), (193, 31629),

Gene: Paola_38 Start: 31317, Stop: 32723, Start Num: 49

Candidate Starts for Paola_38:

(Start: 45 @31308 has 2 MA's), (Start: 49 @31317 has 35 MA's), (58, 31437), (72, 31614), (75, 31638), (80, 31689), (85, 31731), (88, 31779), (90, 31800), (92, 31827), (94, 31836), (96, 31863), (99, 31884), (100, 31902), (103, 31929), (109, 31974), (110, 31980), (120, 32085), (125, 32151), (126, 32160), (128, 32181), (131, 32199), (149, 32307), (151, 32316), (152, 32319), (164, 32427), (167, 32463), (177, 32535), (178, 32544), (191, 32595), (200, 32634), (202, 32646), (203, 32655), (209, 32685), (211, 32700),

Gene: Percival_59 Start: 38819, Stop: 40306, Start Num: 46

Candidate Starts for Percival_59:

(Start: 46 @38819 has 6 MA's), (54, 38882), (55, 38912), (60, 39011), (61, 39014), (64, 39050), (77, 39182), (79, 39194), (87, 39266), (93, 39323), (95, 39350), (104, 39428), (109, 39476), (124, 39653), (126, 39665), (143, 39785), (149, 39818), (158, 39878), (162, 39920), (163, 39932), (178, 40058), (182, 40073), (197, 40151), (201, 40169), (213, 40301),

Gene: PrincePatrick_38 Start: 29413, Stop: 30801, Start Num: 49

Candidate Starts for PrincePatrick_38:

(Start: 49 @29413 has 35 MA's), (53, 29455), (54, 29470), (62, 29626), (70, 29683), (82, 29803), (86, 29836), (89, 29890), (90, 29896), (92, 29923), (96, 29959), (107, 30091), (114, 30151), (117, 30184), (118, 30202), (124, 30277), (126, 30289), (128, 30304), (137, 30340), (147, 30394), (149, 30406), (160, 30487), (168, 30559), (171, 30580), (174, 30613), (175, 30622), (176, 30625), (178, 30637), (179, 30640), (182, 30649), (203, 30745), (207, 30766), (210, 30781),

Gene: REQ1_22 Start: 7618, Stop: 9012, Start Num: 42

Candidate Starts for REQ1_22:

(Start: 42 @7618 has 2 MA's), (52, 7663), (54, 7693), (57, 7747), (58, 7756), (59, 7774), (78, 7990), (85, 8050), (96, 8182), (98, 8194), (100, 8221), (109, 8305), (119, 8410), (128, 8509), (134, 8539), (138, 8566), (139, 8572), (145, 8587), (149, 8611), (162, 8719), (170, 8779), (173, 8821), (191, 8896), (197, 8923),

Gene: Rando14_40 Start: 30508, Stop: 31914, Start Num: 49

Candidate Starts for Rando14_40:

(Start: 45 @30499 has 2 MA's), (Start: 49 @30508 has 35 MA's), (55, 30595), (58, 30628), (62, 30721), (68, 30760), (72, 30805), (75, 30829), (80, 30880), (85, 30922), (88, 30970), (90, 30991), (92, 31018), (94, 31027), (95, 31051), (96, 31054), (99, 31075), (100, 31093), (109, 31165), (110, 31171), (125, 31342), (128, 31372), (131, 31390), (145, 31474), (149, 31498), (152, 31510), (159, 31567), (162, 31606), (164, 31618), (167, 31654), (171, 31678), (177, 31726), (178, 31735), (184, 31759), (200, 31825), (202, 31837), (203, 31846), (209, 31876), (211, 31891),

Gene: RegnumDei_43 Start: 32308, Stop: 33900, Start Num: 23

Candidate Starts for RegnumDei_43:

(23, 32308), (30, 32356), (31, 32368), (48, 32479), (Start: 49 @32482 has 35 MA's), (54, 32539), (57, 32593), (58, 32602), (62, 32698), (67, 32725), (78, 32839), (88, 32947), (94, 33001), (105, 33151), (108, 33169), (109, 33172), (118, 33274), (120, 33283), (149, 33499), (157, 33559), (165, 33640), (178, 33733), (195, 33790), (198, 33814), (199, 33820), (204, 33850),

Gene: SFuller_50 Start: 35352, Stop: 36737, Start Num: 42

Candidate Starts for SFuller_50:

(4, 34941), (5, 34944), (6, 34980), (9, 35058), (12, 35109), (15, 35139), (31, 35259), (34, 35283),
(Start: 42 @35352 has 2 MA's), (52, 35397), (54, 35427), (55, 35457), (58, 35490), (59, 35508), (64,
35589), (75, 35691), (76, 35700), (78, 35724), (85, 35784), (96, 35916), (100, 35955), (109, 36039),
(119, 36144), (123, 36204), (128, 36243), (133, 36270), (138, 36300), (139, 36306), (145, 36321),
(147, 36333), (149, 36345), (162, 36450), (170, 36510), (172, 36525), (191, 36627), (196, 36639),
(197, 36654), (199, 36663), (204, 36693),

Gene: Samba_38 Start: 31981, Stop: 33372, Start Num: 49

Candidate Starts for Samba_38:

(28, 31840), (31, 31867), (41, 31951), (Start: 45 @31972 has 2 MA's), (Start: 49 @31981 has 35 MA's),
(54, 32038), (58, 32101), (62, 32194), (72, 32278), (73, 32281), (82, 32371), (83, 32377), (86, 32404),
(89, 32458), (101, 32575), (106, 32653), (118, 32770), (120, 32779), (122, 32830), (126, 32857), (128,
32872), (141, 32938), (142, 32941), (147, 32962), (149, 32974), (150, 32977), (160, 33055), (165,
33112), (174, 33181), (175, 33190), (179, 33208), (193, 33259), (206, 33334),

Gene: Shagrat_42 Start: 32662, Stop: 34170, Start Num: 33

Candidate Starts for Shagrat_42:

(10, 32476), (11, 32485), (16, 32533), (17, 32554), (20, 32575), (22, 32578), (24, 32593), (26, 32605),
(27, 32608), (Start: 33 @32662 has 1 MA's), (Start: 49 @32755 has 35 MA's), (52, 32779), (54,
32812), (58, 32875), (70, 33028), (72, 33055), (88, 33220), (98, 33316), (99, 33325), (105, 33427),
(107, 33439), (109, 33448), (110, 33454), (119, 33553), (146, 33754), (149, 33769), (152, 33781),
(154, 33805), (157, 33829), (165, 33910), (174, 33979), (198, 34084), (204, 34120),

Gene: SoSeph_38 Start: 31463, Stop: 32869, Start Num: 49

Candidate Starts for SoSeph_38:

(Start: 45 @31454 has 2 MA's), (Start: 49 @31463 has 35 MA's), (58, 31583), (72, 31760), (75, 31784),
(80, 31835), (85, 31877), (88, 31925), (90, 31946), (92, 31973), (94, 31982), (96, 32009), (99, 32030),
(100, 32048), (103, 32075), (109, 32120), (110, 32126), (120, 32231), (125, 32297), (126, 32306),
(128, 32327), (131, 32345), (149, 32453), (151, 32462), (152, 32465), (162, 32561), (164, 32573),
(167, 32609), (177, 32681), (178, 32690), (191, 32741), (200, 32780), (202, 32792), (203, 32801),
(209, 32831), (211, 32846),

Gene: Soondubu_46 Start: 37732, Stop: 39171, Start Num: 43

Candidate Starts for Soondubu_46:

(41, 37720), (Start: 43 @37732 has 1 MA's), (44, 37738), (50, 37756), (56, 37852), (60, 37924), (65,
37969), (66, 37975), (74, 38035), (79, 38095), (97, 38263), (112, 38422), (129, 38590), (144, 38644),
(159, 38737), (162, 38776), (166, 38824), (185, 38947), (188, 38959), (189, 38965), (194, 38983),
(212, 39103),

Gene: SuMoo_64 Start: 40543, Stop: 42009, Start Num: 46

Candidate Starts for SuMoo_64:

(Start: 46 @40543 has 6 MA's), (60, 40735), (77, 40906), (79, 40918), (107, 41191), (109, 41200),
(149, 41539), (163, 41653), (183, 41803), (208, 41917),

Gene: SuperHands_60 Start: 39474, Stop: 40961, Start Num: 46

Candidate Starts for SuperHands_60:

(19, 39306), (Start: 46 @39474 has 6 MA's), (54, 39537), (55, 39567), (60, 39666), (61, 39669), (64,
39705), (77, 39837), (79, 39849), (81, 39861), (93, 39978), (99, 40029), (102, 40059), (109, 40131),
(121, 40248), (124, 40308), (126, 40320), (149, 40473), (158, 40533), (162, 40575), (163, 40587),
(182, 40728), (188, 40758), (189, 40764), (197, 40806), (201, 40824), (213, 40956),

Gene: ThursdayNight_52 Start: 36511, Stop: 37926, Start Num: 44

Candidate Starts for ThursdayNight_52:

(44, 36511), (51, 36526), (60, 36691), (79, 36862), (97, 37030), (109, 37144), (110, 37150), (111, 37174), (115, 37210), (123, 37309), (127, 37348), (129, 37357), (147, 37426), (166, 37591), (180, 37687), (189, 37732), (194, 37750),

Gene: Thyatira_40 Start: 33664, Stop: 35070, Start Num: 49

Candidate Starts for Thyatira_40:

(Start: 45 @33655 has 2 MA's), (Start: 49 @33664 has 35 MA's), (58, 33784), (72, 33961), (75, 33985), (80, 34036), (85, 34078), (88, 34126), (90, 34147), (92, 34174), (94, 34183), (96, 34210), (99, 34231), (100, 34249), (103, 34276), (109, 34321), (110, 34327), (120, 34432), (125, 34498), (126, 34507), (128, 34528), (131, 34546), (149, 34654), (151, 34663), (152, 34666), (162, 34762), (164, 34774), (167, 34810), (177, 34882), (178, 34891), (191, 34942), (200, 34981), (202, 34993), (203, 35002), (209, 35032), (211, 35047),

Gene: TinyDot_31 Start: 24778, Stop: 26145, Start Num: 49

Candidate Starts for TinyDot_31:

(Start: 49 @24778 has 35 MA's), (55, 24865), (72, 25075), (104, 25399), (126, 25633), (128, 25648), (187, 26017),

Gene: Toast_37 Start: 30300, Stop: 31742, Start Num: 39

Candidate Starts for Toast_37:

(Start: 39 @30300 has 1 MA's), (40, 30303), (Start: 49 @30351 has 35 MA's), (52, 30375), (54, 30408), (58, 30471), (62, 30564), (72, 30648), (86, 30774), (89, 30828), (99, 30918), (101, 30945), (106, 31023), (113, 31086), (117, 31122), (120, 31149), (122, 31200), (126, 31227), (128, 31242), (147, 31332), (149, 31344), (150, 31347), (165, 31482), (179, 31578), (191, 31623), (193, 31629),

Gene: Utz_33 Start: 30671, Stop: 32062, Start Num: 49

Candidate Starts for Utz_33:

(28, 30530), (31, 30557), (41, 30641), (Start: 45 @30662 has 2 MA's), (Start: 49 @30671 has 35 MA's), (58, 30791), (72, 30968), (82, 31061), (83, 31067), (86, 31094), (89, 31148), (101, 31265), (106, 31343), (122, 31520), (126, 31547), (128, 31562), (141, 31628), (142, 31631), (147, 31652), (149, 31664), (150, 31667), (160, 31745), (165, 31802), (174, 31871), (179, 31898), (193, 31949), (197, 31970),

Gene: UtzChips_59 Start: 38303, Stop: 39808, Start Num: 46

Candidate Starts for UtzChips_59:

(7, 37964), (37, 38255), (Start: 46 @38303 has 6 MA's), (60, 38495), (77, 38666), (99, 38858), (104, 38912), (109, 38960), (118, 39062), (149, 39299), (166, 39449), (181, 39548), (214, 39803),

Gene: Waterfoul_39 Start: 31558, Stop: 32964, Start Num: 49

Candidate Starts for Waterfoul_39:

(Start: 45 @31549 has 2 MA's), (Start: 49 @31558 has 35 MA's), (58, 31678), (72, 31855), (75, 31879), (80, 31930), (85, 31972), (88, 32020), (90, 32041), (92, 32068), (94, 32077), (96, 32104), (99, 32125), (100, 32143), (103, 32170), (109, 32215), (110, 32221), (120, 32326), (125, 32392), (126, 32401), (128, 32422), (131, 32440), (149, 32548), (151, 32557), (152, 32560), (162, 32656), (164, 32668), (167, 32704), (177, 32776), (178, 32785), (191, 32836), (200, 32875), (202, 32887), (203, 32896), (209, 32926), (211, 32941),

Gene: William_40 Start: 31099, Stop: 32487, Start Num: 49

Candidate Starts for William_40:

(Start: 49 @31099 has 35 MA's), (53, 31141), (54, 31156), (62, 31312), (70, 31369), (82, 31489), (86, 31522), (89, 31576), (90, 31582), (92, 31609), (96, 31645), (107, 31777), (114, 31837), (117, 31870), (118, 31888), (124, 31963), (126, 31975), (128, 31990), (137, 32026), (147, 32080), (149, 32092), (160, 32173), (165, 32230), (168, 32245), (171, 32266), (174, 32299), (175, 32308), (176, 32311), (178, 32323), (179, 32326), (182, 32335), (203, 32431), (207, 32452), (210, 32467),

Gene: Wisp_35 Start: 29114, Stop: 30505, Start Num: 49

Candidate Starts for Wisp_35:

(28, 28973), (31, 29000), (41, 29084), (Start: 45 @29105 has 2 MA's), (Start: 49 @29114 has 35 MA's), (54, 29171), (58, 29234), (62, 29327), (72, 29411), (82, 29504), (83, 29510), (86, 29537), (89, 29591), (101, 29708), (106, 29786), (118, 29903), (120, 29912), (122, 29963), (126, 29990), (128, 30005), (141, 30071), (142, 30074), (147, 30095), (149, 30107), (150, 30110), (160, 30188), (165, 30245), (174, 30314), (175, 30323), (179, 30341), (193, 30392), (206, 30467),

Gene: Wocket_39 Start: 29863, Stop: 31254, Start Num: 49

Candidate Starts for Wocket_39:

(Start: 49 @29863 has 35 MA's), (72, 30160), (86, 30286), (89, 30340), (101, 30457), (113, 30598), (117, 30634), (118, 30652), (122, 30712), (126, 30739), (128, 30754), (137, 30790), (141, 30820), (149, 30856), (150, 30859), (160, 30937), (174, 31063), (193, 31141), (197, 31162), (206, 31216),

Gene: ZiggyZoo_38 Start: 30330, Stop: 31721, Start Num: 49

Candidate Starts for ZiggyZoo_38:

(36, 30252), (40, 30282), (41, 30300), (Start: 49 @30330 has 35 MA's), (58, 30450), (62, 30543), (71, 30609), (82, 30720), (86, 30753), (89, 30807), (101, 30924), (106, 31002), (122, 31179), (126, 31206), (128, 31221), (141, 31287), (142, 31290), (147, 31311), (148, 31314), (149, 31323), (150, 31326), (160, 31404), (165, 31461), (171, 31497), (174, 31530), (175, 31539), (179, 31557), (193, 31608), (197, 31629), (206, 31683),