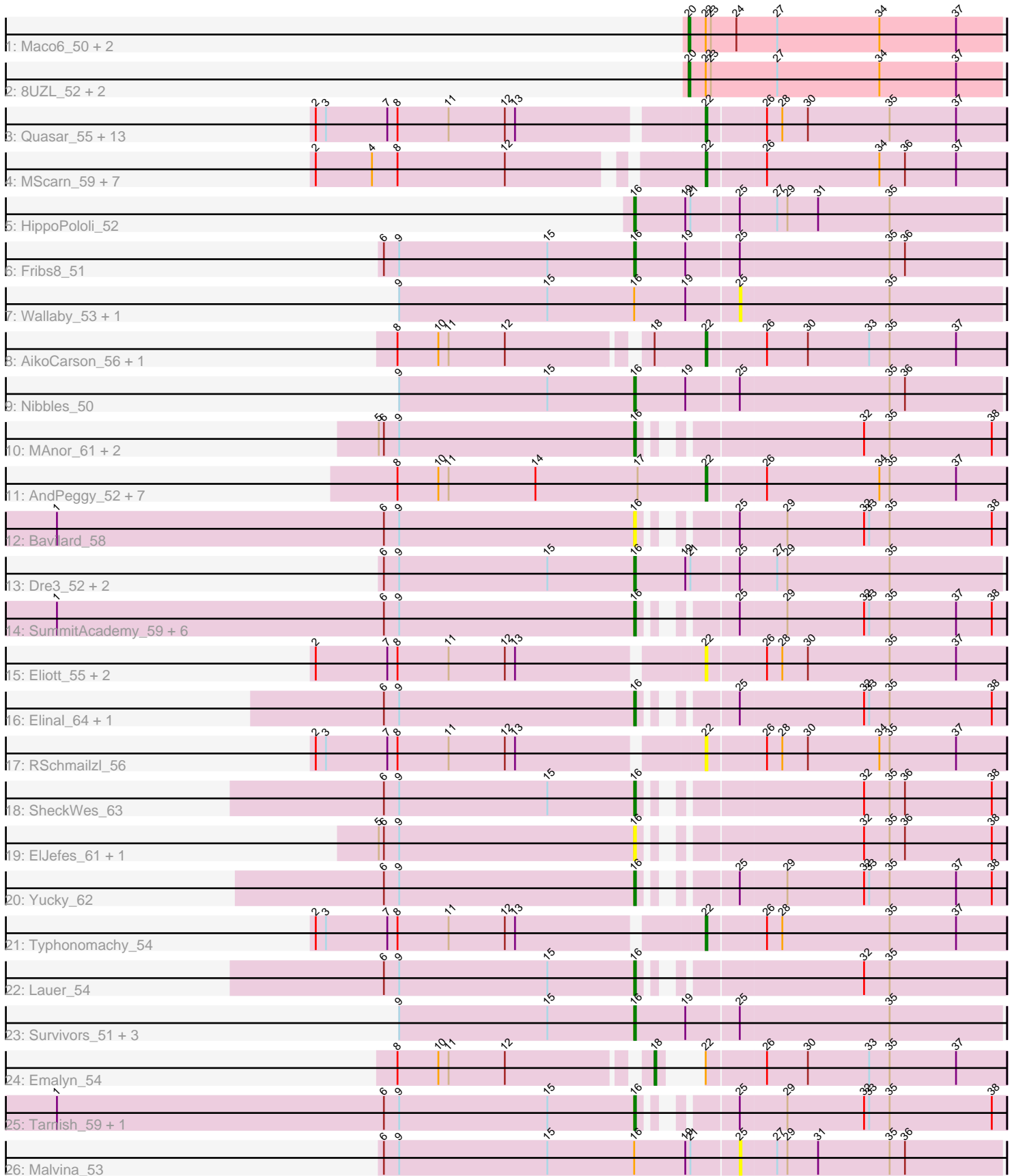


Pham 296509



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 296509 Report

This analysis was run 04/25/26 on database version 644.

Pham number 296509 has 77 members, 24 are drafts.

Phages represented in each track:

- Track 1 : Maco6_50, LongHai_53, Salvus_53
- Track 2 : 8UZL_52, Muddy_52, FF47_50
- Track 3 : Quasar_55, Agatha_55, Nina_55, Cozz_53, Socotra_56, MunkgeeRoachy_53, Starburst_55, Axym_54, Carsonalex_58, RADical_56, GoldHunter_56, Burnsey_55, SweatNTears_57, Bubble_53
- Track 4 : MScarn_59, Biskit_57, Buttrmlkdreams_57, Blondies_58, Yummy_57, SketchMex_55, Troje_57, Horseradish_57
- Track 5 : HippoPololi_52
- Track 6 : Fribs8_51
- Track 7 : Wallaby_53, Wolfwood_53
- Track 8 : AikoCarson_56, Amok_56
- Track 9 : Nibbles_50
- Track 10 : MAnor_61, CherryonLim_60, Mayweather_63
- Track 11 : AndPeggy_52, Yarn_52, CanesSauce_54, SteamedHams_56, CaramellLatte_54, BillDoor_55, Tolls_56, ChocoMunchkin_54
- Track 12 : Bavidard_58
- Track 13 : Dre3_52, Gibbous_52, Cleo_49
- Track 14 : SummitAcademy_59, BigChungus_59, Feastonyeet_59, PotPie_59, CocoaPuff_59, Balloona_58, Vine_62
- Track 15 : Elliott_55, PsychoKiller_54, Sopespian_52
- Track 16 : Elinal_64, KayGee_62
- Track 17 : RSchmailzl_56
- Track 18 : SheckWes_63
- Track 19 : ElJefes_61, McDazzle_61
- Track 20 : Yucky_62
- Track 21 : Typhonomachy_54
- Track 22 : Lauer_54
- Track 23 : Survivors_51, Azira_51, MaVan_51, Zareef_51
- Track 24 : Emalyn_54
- Track 25 : Tarnish_59, Pons_61
- Track 26 : Malvina_53

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

The start number called the most often in the published annotations is 16, it was called in 25 of the 53 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Azira_51, Balloona_58, Bavidard_58, BigChungus_59, CherryonLim_60, Cleo_49, CocoaPuff_59, Dre3_52, ElJefes_61, Elinal_64, Feastonyeet_59, Fribs8_51, Gibbous_52, HippoPololi_52, KayGee_62, Lauer_54, MAnor_61, MaVan_51, Mayweather_63, McDazzle_61, Nibbles_50, Pons_61, PotPie_59, SheckWes_63, SummitAcademy_59, Survivors_51, Tarnish_59, Vine_62, Yucky_62, Zareef_51,

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

- Malvina_53, Wallaby_53, Wolfwood_53,

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

- 8UZL_52, Agatha_55, AikoCarson_56, Amok_56, AndPeggy_52, Axym_54, BillDoor_55, Biskit_57, Blondies_58, Bubble_53, Burnsey_55, Buttrmlkdreams_57, CanesSauce_54, CaramellLatte_54, Carsonalex_58, ChocoMunchkin_54, Cozz_53, Elliott_55, Emalyn_54, FF47_50, GoldHunter_56, Horseradish_57, LongHai_53, MScarn_59, Maco6_50, Muddy_52, MunkgeeRoachy_53, Nina_55, PsychoKiller_54, Quasar_55, RADical_56, RSchmailzl_56, Salvus_53, SketchMex_55, Socotra_56, Sopespian_52, Starburst_55, SteamedHams_56, SweatNTears_57, Tolls_56, Troje_57, Typhonomachy_54, Yarn_52, Yummy_57,

Summary by start number:

Start 16:

- Found in 33 of 77 (42.9%) of genes in pham
- Manual Annotations of this start: 25 of 53
- Called 90.9% of time when present
- Phage (with cluster) where this start called: Azira_51 (CT), Balloona_58 (CT), Bavidard_58 (CT), BigChungus_59 (CT), CherryonLim_60 (CT), Cleo_49 (CT), CocoaPuff_59 (CT), Dre3_52 (CT), ElJefes_61 (CT), Elinal_64 (CT), Feastonyeet_59 (CT), Fribs8_51 (CT), Gibbous_52 (CT), HippoPololi_52 (CT), KayGee_62 (CT), Lauer_54 (CT), MAnor_61 (CT), MaVan_51 (CT), Mayweather_63 (CT), McDazzle_61 (CT), Nibbles_50 (CT), Pons_61 (CT), PotPie_59 (CT), SheckWes_63 (CT), SummitAcademy_59 (CT), Survivors_51 (CT), Tarnish_59 (CT), Vine_62 (CT), Yucky_62 (CT), Zareef_51 (CT),

Start 18:

- Found in 3 of 77 (3.9%) of genes in pham
- Manual Annotations of this start: 1 of 53
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Emalyn_54 (CT),

Start 20:

- Found in 6 of 77 (7.8%) of genes in pham
- Manual Annotations of this start: 2 of 53
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 8UZL_52 (AB), FF47_50 (AB), LongHai_53 (AB), Maco6_50 (AB), Muddy_52 (AB), Salvus_53 (AB),

Start 22:

- Found in 44 of 77 (57.1%) of genes in pham

- Manual Annotations of this start: 25 of 53
- Called 84.1% of time when present
- Phage (with cluster) where this start called: Agatha_55 (CT), AikoCarson_56 (CT), Amok_56 (CT), AndPeggy_52 (CT), Axym_54 (CT), BillDoor_55 (CT), Biskit_57 (CT), Blondies_58 (CT), Bubble_53 (CT), Burnsey_55 (CT), Buttrmlkdreams_57 (CT), CanesSauce_54 (CT), Caramellatte_54 (CT), Carsonalex_58 (CT), ChocoMunchkin_54 (CT), Cozz_53 (CT), Elliott_55 (CT), GoldHunter_56 (CT), Horseradish_57 (CT), MScarn_59 (CT), MunkgeeRoachy_53 (CT), Nina_55 (CT), PsychoKiller_54 (CT), Quasar_55 (CT), RADical_56 (CT), RSchmailzl_56 (CT), SketchMex_55 (CT), Socotra_56 (CT), Sopespian_52 (CT), Starburst_55 (CT), SteamedHams_56 (CT), SweatNTears_57 (CT), Tolls_56 (CT), Troje_57 (CT), Typhonomachy_54 (CT), Yarn_52 (CT), Yummy_57 (CT),

Start 25:

- Found in 26 of 77 (33.8%) of genes in pham
- No Manual Annotations of this start.
- Called 11.5% of time when present
- Phage (with cluster) where this start called: Malvina_53 (CT), Wallaby_53 (CT), Wolfwood_53 (CT),

Summary by clusters:

There are 2 clusters represented in this pham: AB, CT,

Info for manual annotations of cluster AB:

- Start number 20 was manually annotated 2 times for cluster AB.

Info for manual annotations of cluster CT:

- Start number 16 was manually annotated 25 times for cluster CT.
- Start number 18 was manually annotated 1 time for cluster CT.
- Start number 22 was manually annotated 25 times for cluster CT.

Gene Information:

Gene: 8UZL_52 Start: 39521, Stop: 39339, Start Num: 20

Candidate Starts for 8UZL_52:

(Start: 20 @39521 has 2 MA's), (Start: 22 @39512 has 25 MA's), (23, 39509), (27, 39470), (34, 39410), (37, 39365),

Gene: Agatha_55 Start: 39281, Stop: 39108, Start Num: 22

Candidate Starts for Agatha_55:

(2, 39500), (3, 39494), (7, 39458), (8, 39452), (11, 39422), (12, 39389), (13, 39383), (Start: 22 @39281 has 25 MA's), (26, 39248), (28, 39239), (30, 39224), (35, 39176), (37, 39137),

Gene: AikoCarson_56 Start: 39495, Stop: 39322, Start Num: 22

Candidate Starts for AikoCarson_56:

(8, 39639), (10, 39615), (11, 39609), (12, 39576), (Start: 18 @39501 has 1 MA's), (Start: 22 @39495 has 25 MA's), (26, 39462), (30, 39438), (33, 39402), (35, 39390), (37, 39351),

Gene: Amok_56 Start: 39423, Stop: 39250, Start Num: 22

Candidate Starts for Amok_56:

(8, 39567), (10, 39543), (11, 39537), (12, 39504), (Start: 18 @39429 has 1 MA's), (Start: 22 @39423 has 25 MA's), (26, 39390), (30, 39366), (33, 39330), (35, 39318), (37, 39279),

Gene: AndPeggy_52 Start: 38688, Stop: 38515, Start Num: 22

Candidate Starts for AndPeggy_52:

(8, 38868), (10, 38844), (11, 38838), (14, 38787), (17, 38727), (Start: 22 @38688 has 25 MA's), (26, 38655), (34, 38589), (35, 38583), (37, 38544),

Gene: Axym_54 Start: 39178, Stop: 39005, Start Num: 22

Candidate Starts for Axym_54:

(2, 39397), (3, 39391), (7, 39355), (8, 39349), (11, 39319), (12, 39286), (13, 39280), (Start: 22 @39178 has 25 MA's), (26, 39145), (28, 39136), (30, 39121), (35, 39073), (37, 39034),

Gene: Azira_51 Start: 38488, Stop: 38276, Start Num: 16

Candidate Starts for Azira_51:

(9, 38626), (15, 38539), (Start: 16 @38488 has 25 MA's), (19, 38458), (25, 38428), (35, 38341),

Gene: Balloona_58 Start: 41534, Stop: 41340, Start Num: 16

Candidate Starts for Balloona_58:

(1, 41873), (6, 41681), (9, 41672), (Start: 16 @41534 has 25 MA's), (25, 41495), (29, 41468), (32, 41423), (33, 41420), (35, 41408), (37, 41369), (38, 41348),

Gene: Bavilard_58 Start: 40544, Stop: 40350, Start Num: 16

Candidate Starts for Bavilard_58:

(1, 40883), (6, 40691), (9, 40682), (Start: 16 @40544 has 25 MA's), (25, 40505), (29, 40478), (32, 40433), (33, 40430), (35, 40418), (38, 40358),

Gene: BigChungus_59 Start: 41075, Stop: 40881, Start Num: 16

Candidate Starts for BigChungus_59:

(1, 41414), (6, 41222), (9, 41213), (Start: 16 @41075 has 25 MA's), (25, 41036), (29, 41009), (32, 40964), (33, 40961), (35, 40949), (37, 40910), (38, 40889),

Gene: BillDoor_55 Start: 38364, Stop: 38191, Start Num: 22

Candidate Starts for BillDoor_55:

(8, 38544), (10, 38520), (11, 38514), (14, 38463), (17, 38403), (Start: 22 @38364 has 25 MA's), (26, 38331), (34, 38265), (35, 38259), (37, 38220),

Gene: Biskit_57 Start: 39090, Stop: 38917, Start Num: 22

Candidate Starts for Biskit_57:

(2, 39282), (4, 39249), (8, 39234), (12, 39171), (Start: 22 @39090 has 25 MA's), (26, 39057), (34, 38991), (36, 38976), (37, 38946),

Gene: Blondies_58 Start: 39407, Stop: 39234, Start Num: 22

Candidate Starts for Blondies_58:

(2, 39599), (4, 39566), (8, 39551), (12, 39488), (Start: 22 @39407 has 25 MA's), (26, 39374), (34, 39308), (36, 39293), (37, 39263),

Gene: Bubble_53 Start: 38866, Stop: 38693, Start Num: 22

Candidate Starts for Bubble_53:

(2, 39085), (3, 39079), (7, 39043), (8, 39037), (11, 39007), (12, 38974), (13, 38968), (Start: 22 @38866 has 25 MA's), (26, 38833), (28, 38824), (30, 38809), (35, 38761), (37, 38722),

Gene: Burnsey_55 Start: 39272, Stop: 39099, Start Num: 22

Candidate Starts for Burnsey_55:

(2, 39491), (3, 39485), (7, 39449), (8, 39443), (11, 39413), (12, 39380), (13, 39374), (Start: 22 @39272 has 25 MA's), (26, 39239), (28, 39230), (30, 39215), (35, 39167), (37, 39128),

Gene: Buttrmlkdreams_57 Start: 39537, Stop: 39364, Start Num: 22

Candidate Starts for Buttrmlkdreams_57:

(2, 39729), (4, 39696), (8, 39681), (12, 39618), (Start: 22 @39537 has 25 MA's), (26, 39504), (34, 39438), (36, 39423), (37, 39393),

Gene: CanesSauce_54 Start: 38849, Stop: 38676, Start Num: 22

Candidate Starts for CanesSauce_54:

(8, 39029), (10, 39005), (11, 38999), (14, 38948), (17, 38888), (Start: 22 @38849 has 25 MA's), (26, 38816), (34, 38750), (35, 38744), (37, 38705),

Gene: Caramellatte_54 Start: 38849, Stop: 38676, Start Num: 22

Candidate Starts for Caramellatte_54:

(8, 39029), (10, 39005), (11, 38999), (14, 38948), (17, 38888), (Start: 22 @38849 has 25 MA's), (26, 38816), (34, 38750), (35, 38744), (37, 38705),

Gene: Carsonalex_58 Start: 39660, Stop: 39487, Start Num: 22

Candidate Starts for Carsonalex_58:

(2, 39879), (3, 39873), (7, 39837), (8, 39831), (11, 39801), (12, 39768), (13, 39762), (Start: 22 @39660 has 25 MA's), (26, 39627), (28, 39618), (30, 39603), (35, 39555), (37, 39516),

Gene: CherryonLim_60 Start: 42554, Stop: 42360, Start Num: 16

Candidate Starts for CherryonLim_60:

(5, 42704), (6, 42701), (9, 42692), (Start: 16 @42554 has 25 MA's), (32, 42443), (35, 42428), (38, 42368),

Gene: ChocoMunchkin_54 Start: 38849, Stop: 38676, Start Num: 22

Candidate Starts for ChocoMunchkin_54:

(8, 39029), (10, 39005), (11, 38999), (14, 38948), (17, 38888), (Start: 22 @38849 has 25 MA's), (26, 38816), (34, 38750), (35, 38744), (37, 38705),

Gene: Cleo_49 Start: 38249, Stop: 38037, Start Num: 16

Candidate Starts for Cleo_49:

(6, 38396), (9, 38387), (15, 38300), (Start: 16 @38249 has 25 MA's), (19, 38219), (21, 38216), (25, 38189), (27, 38168), (29, 38162), (35, 38102),

Gene: CocoaPuff_59 Start: 41080, Stop: 40886, Start Num: 16

Candidate Starts for CocoaPuff_59:

(1, 41419), (6, 41227), (9, 41218), (Start: 16 @41080 has 25 MA's), (25, 41041), (29, 41014), (32, 40969), (33, 40966), (35, 40954), (37, 40915), (38, 40894),

Gene: Cozz_53 Start: 38869, Stop: 38696, Start Num: 22

Candidate Starts for Cozz_53:

(2, 39088), (3, 39082), (7, 39046), (8, 39040), (11, 39010), (12, 38977), (13, 38971), (Start: 22 @38869 has 25 MA's), (26, 38836), (28, 38827), (30, 38812), (35, 38764), (37, 38725),

Gene: Dre3_52 Start: 39093, Stop: 38881, Start Num: 16

Candidate Starts for Dre3_52:

(6, 39240), (9, 39231), (15, 39144), (Start: 16 @39093 has 25 MA's), (19, 39063), (21, 39060), (25, 39033), (27, 39012), (29, 39006), (35, 38946),

Gene: ElJefes_61 Start: 41610, Stop: 41416, Start Num: 16

Candidate Starts for ElJefes_61:

(5, 41760), (6, 41757), (9, 41748), (Start: 16 @41610 has 25 MA's), (32, 41499), (35, 41484), (36, 41475), (38, 41424),

Gene: Elinal_64 Start: 41883, Stop: 41689, Start Num: 16

Candidate Starts for Elinal_64:

(6, 42030), (9, 42021), (Start: 16 @41883 has 25 MA's), (25, 41844), (32, 41772), (33, 41769), (35, 41757), (38, 41697),

Gene: Elliott_55 Start: 39165, Stop: 38992, Start Num: 22

Candidate Starts for Elliott_55:

(2, 39384), (7, 39342), (8, 39336), (11, 39306), (12, 39273), (13, 39267), (Start: 22 @39165 has 25 MA's), (26, 39132), (28, 39123), (30, 39108), (35, 39060), (37, 39021),

Gene: Emalyn_54 Start: 38221, Stop: 38042, Start Num: 18

Candidate Starts for Emalyn_54:

(8, 38359), (10, 38335), (11, 38329), (12, 38296), (Start: 18 @38221 has 1 MA's), (Start: 22 @38215 has 25 MA's), (26, 38182), (30, 38158), (33, 38122), (35, 38110), (37, 38071),

Gene: FF47_50 Start: 39432, Stop: 39250, Start Num: 20

Candidate Starts for FF47_50:

(Start: 20 @39432 has 2 MA's), (Start: 22 @39423 has 25 MA's), (23, 39420), (27, 39381), (34, 39321), (37, 39276),

Gene: Feastonyeet_59 Start: 41075, Stop: 40881, Start Num: 16

Candidate Starts for Feastonyeet_59:

(1, 41414), (6, 41222), (9, 41213), (Start: 16 @41075 has 25 MA's), (25, 41036), (29, 41009), (32, 40964), (33, 40961), (35, 40949), (37, 40910), (38, 40889),

Gene: Fribs8_51 Start: 39165, Stop: 38953, Start Num: 16

Candidate Starts for Fribs8_51:

(6, 39312), (9, 39303), (15, 39216), (Start: 16 @39165 has 25 MA's), (19, 39135), (25, 39105), (35, 39018), (36, 39009),

Gene: Gibbous_52 Start: 39093, Stop: 38881, Start Num: 16

Candidate Starts for Gibbous_52:

(6, 39240), (9, 39231), (15, 39144), (Start: 16 @39093 has 25 MA's), (19, 39063), (21, 39060), (25, 39033), (27, 39012), (29, 39006), (35, 38946),

Gene: GoldHunter_56 Start: 39282, Stop: 39109, Start Num: 22

Candidate Starts for GoldHunter_56:

(2, 39501), (3, 39495), (7, 39459), (8, 39453), (11, 39423), (12, 39390), (13, 39384), (Start: 22 @39282 has 25 MA's), (26, 39249), (28, 39240), (30, 39225), (35, 39177), (37, 39138),

Gene: HippoPololi_52 Start: 38402, Stop: 38190, Start Num: 16

Candidate Starts for HippoPololi_52:

(Start: 16 @38402 has 25 MA's), (19, 38372), (21, 38369), (25, 38342), (27, 38321), (29, 38315), (31, 38297), (35, 38255),

Gene: Horseradish_57 Start: 39023, Stop: 38850, Start Num: 22

Candidate Starts for Horseradish_57:

(2, 39215), (4, 39182), (8, 39167), (12, 39104), (Start: 22 @39023 has 25 MA's), (26, 38990), (34, 38924), (36, 38909), (37, 38879),

Gene: KayGee_62 Start: 41883, Stop: 41689, Start Num: 16

Candidate Starts for KayGee_62:

(6, 42030), (9, 42021), (Start: 16 @41883 has 25 MA's), (25, 41844), (32, 41772), (33, 41769), (35, 41757), (38, 41697),

Gene: Lauer_54 Start: 42060, Stop: 41866, Start Num: 16

Candidate Starts for Lauer_54:

(6, 42207), (9, 42198), (15, 42111), (Start: 16 @42060 has 25 MA's), (32, 41949), (35, 41934),

Gene: LongHai_53 Start: 39833, Stop: 39651, Start Num: 20

Candidate Starts for LongHai_53:

(Start: 20 @39833 has 2 MA's), (Start: 22 @39824 has 25 MA's), (23, 39821), (24, 39806), (27, 39782), (34, 39722), (37, 39677),

Gene: MAnor_61 Start: 42014, Stop: 41820, Start Num: 16

Candidate Starts for MAnor_61:

(5, 42164), (6, 42161), (9, 42152), (Start: 16 @42014 has 25 MA's), (32, 41903), (35, 41888), (38, 41828),

Gene: MScarn_59 Start: 39205, Stop: 39032, Start Num: 22

Candidate Starts for MScarn_59:

(2, 39397), (4, 39364), (8, 39349), (12, 39286), (Start: 22 @39205 has 25 MA's), (26, 39172), (34, 39106), (36, 39091), (37, 39061),

Gene: MaVan_51 Start: 38517, Stop: 38305, Start Num: 16

Candidate Starts for MaVan_51:

(9, 38655), (15, 38568), (Start: 16 @38517 has 25 MA's), (19, 38487), (25, 38457), (35, 38370),

Gene: Maco6_50 Start: 38772, Stop: 38590, Start Num: 20

Candidate Starts for Maco6_50:

(Start: 20 @38772 has 2 MA's), (Start: 22 @38763 has 25 MA's), (23, 38760), (24, 38745), (27, 38721), (34, 38661), (37, 38616),

Gene: Malvina_53 Start: 38340, Stop: 38188, Start Num: 25

Candidate Starts for Malvina_53:

(6, 38547), (9, 38538), (15, 38451), (Start: 16 @38400 has 25 MA's), (19, 38370), (21, 38367), (25, 38340), (27, 38319), (29, 38313), (31, 38295), (35, 38253), (36, 38244),

Gene: Mayweather_63 Start: 42277, Stop: 42083, Start Num: 16

Candidate Starts for Mayweather_63:

(5, 42427), (6, 42424), (9, 42415), (Start: 16 @42277 has 25 MA's), (32, 42166), (35, 42151), (38, 42091),

Gene: McDazzle_61 Start: 41604, Stop: 41410, Start Num: 16

Candidate Starts for McDazzle_61:

(5, 41754), (6, 41751), (9, 41742), (Start: 16 @41604 has 25 MA's), (32, 41493), (35, 41478), (36, 41469), (38, 41418),

Gene: Muddy_52 Start: 40004, Stop: 39822, Start Num: 20

Candidate Starts for Muddy_52:

(Start: 20 @40004 has 2 MA's), (Start: 22 @39995 has 25 MA's), (23, 39992), (27, 39953), (34, 39893), (37, 39848),

Gene: MunkgeeRoachy_53 Start: 38628, Stop: 38455, Start Num: 22

Candidate Starts for MunkgeeRoachy_53:

(2, 38847), (3, 38841), (7, 38805), (8, 38799), (11, 38769), (12, 38736), (13, 38730), (Start: 22 @38628 has 25 MA's), (26, 38595), (28, 38586), (30, 38571), (35, 38523), (37, 38484),

Gene: Nibbles_50 Start: 38210, Stop: 37998, Start Num: 16

Candidate Starts for Nibbles_50:

(9, 38348), (15, 38261), (Start: 16 @38210 has 25 MA's), (19, 38180), (25, 38150), (35, 38063), (36, 38054),

Gene: Nina_55 Start: 39768, Stop: 39595, Start Num: 22

Candidate Starts for Nina_55:

(2, 39987), (3, 39981), (7, 39945), (8, 39939), (11, 39909), (12, 39876), (13, 39870), (Start: 22 @39768 has 25 MA's), (26, 39735), (28, 39726), (30, 39711), (35, 39663), (37, 39624),

Gene: Pons_61 Start: 41619, Stop: 41425, Start Num: 16

Candidate Starts for Pons_61:

(1, 41958), (6, 41766), (9, 41757), (15, 41670), (Start: 16 @41619 has 25 MA's), (25, 41580), (29, 41553), (32, 41508), (33, 41505), (35, 41493), (38, 41433),

Gene: PotPie_59 Start: 42110, Stop: 41916, Start Num: 16

Candidate Starts for PotPie_59:

(1, 42449), (6, 42257), (9, 42248), (Start: 16 @42110 has 25 MA's), (25, 42071), (29, 42044), (32, 41999), (33, 41996), (35, 41984), (37, 41945), (38, 41924),

Gene: PsychoKiller_54 Start: 39166, Stop: 38993, Start Num: 22

Candidate Starts for PsychoKiller_54:

(2, 39385), (7, 39343), (8, 39337), (11, 39307), (12, 39274), (13, 39268), (Start: 22 @39166 has 25 MA's), (26, 39133), (28, 39124), (30, 39109), (35, 39061), (37, 39022),

Gene: Quasar_55 Start: 39870, Stop: 39697, Start Num: 22

Candidate Starts for Quasar_55:

(2, 40089), (3, 40083), (7, 40047), (8, 40041), (11, 40011), (12, 39978), (13, 39972), (Start: 22 @39870 has 25 MA's), (26, 39837), (28, 39828), (30, 39813), (35, 39765), (37, 39726),

Gene: RADical_56 Start: 39160, Stop: 38987, Start Num: 22

Candidate Starts for RADical_56:

(2, 39379), (3, 39373), (7, 39337), (8, 39331), (11, 39301), (12, 39268), (13, 39262), (Start: 22 @39160 has 25 MA's), (26, 39127), (28, 39118), (30, 39103), (35, 39055), (37, 39016),

Gene: RSchmailzl_56 Start: 39325, Stop: 39152, Start Num: 22

Candidate Starts for RSchmailzl_56:

(2, 39544), (3, 39538), (7, 39502), (8, 39496), (11, 39466), (12, 39433), (13, 39427), (Start: 22 @39325 has 25 MA's), (26, 39292), (28, 39283), (30, 39268), (34, 39226), (35, 39220), (37, 39181),

Gene: Salvus_53 Start: 39833, Stop: 39651, Start Num: 20

Candidate Starts for Salvus_53:

(Start: 20 @39833 has 2 MA's), (Start: 22 @39824 has 25 MA's), (23, 39821), (24, 39806), (27, 39782), (34, 39722), (37, 39677),

Gene: SheckWes_63 Start: 41150, Stop: 40956, Start Num: 16
Candidate Starts for SheckWes_63:
(6, 41297), (9, 41288), (15, 41201), (Start: 16 @41150 has 25 MA's), (32, 41039), (35, 41024), (36, 41015), (38, 40964),

Gene: SketchMex_55 Start: 39090, Stop: 38917, Start Num: 22
Candidate Starts for SketchMex_55:
(2, 39282), (4, 39249), (8, 39234), (12, 39171), (Start: 22 @39090 has 25 MA's), (26, 39057), (34, 38991), (36, 38976), (37, 38946),

Gene: Socotra_56 Start: 39278, Stop: 39105, Start Num: 22
Candidate Starts for Socotra_56:
(2, 39497), (3, 39491), (7, 39455), (8, 39449), (11, 39419), (12, 39386), (13, 39380), (Start: 22 @39278 has 25 MA's), (26, 39245), (28, 39236), (30, 39221), (35, 39173), (37, 39134),

Gene: Sopespian_52 Start: 39167, Stop: 38994, Start Num: 22
Candidate Starts for Sopespian_52:
(2, 39386), (7, 39344), (8, 39338), (11, 39308), (12, 39275), (13, 39269), (Start: 22 @39167 has 25 MA's), (26, 39134), (28, 39125), (30, 39110), (35, 39062), (37, 39023),

Gene: Starburst_55 Start: 39162, Stop: 38989, Start Num: 22
Candidate Starts for Starburst_55:
(2, 39381), (3, 39375), (7, 39339), (8, 39333), (11, 39303), (12, 39270), (13, 39264), (Start: 22 @39162 has 25 MA's), (26, 39129), (28, 39120), (30, 39105), (35, 39057), (37, 39018),

Gene: SteamedHams_56 Start: 38665, Stop: 38492, Start Num: 22
Candidate Starts for SteamedHams_56:
(8, 38845), (10, 38821), (11, 38815), (14, 38764), (17, 38704), (Start: 22 @38665 has 25 MA's), (26, 38632), (34, 38566), (35, 38560), (37, 38521),

Gene: SummitAcademy_59 Start: 41253, Stop: 41059, Start Num: 16
Candidate Starts for SummitAcademy_59:
(1, 41592), (6, 41400), (9, 41391), (Start: 16 @41253 has 25 MA's), (25, 41214), (29, 41187), (32, 41142), (33, 41139), (35, 41127), (37, 41088), (38, 41067),

Gene: Survivors_51 Start: 38410, Stop: 38198, Start Num: 16
Candidate Starts for Survivors_51:
(9, 38548), (15, 38461), (Start: 16 @38410 has 25 MA's), (19, 38380), (25, 38350), (35, 38263),

Gene: SweatNTears_57 Start: 39409, Stop: 39236, Start Num: 22
Candidate Starts for SweatNTears_57:
(2, 39628), (3, 39622), (7, 39586), (8, 39580), (11, 39550), (12, 39517), (13, 39511), (Start: 22 @39409 has 25 MA's), (26, 39376), (28, 39367), (30, 39352), (35, 39304), (37, 39265),

Gene: Tarnish_59 Start: 41434, Stop: 41240, Start Num: 16
Candidate Starts for Tarnish_59:
(1, 41773), (6, 41581), (9, 41572), (15, 41485), (Start: 16 @41434 has 25 MA's), (25, 41395), (29, 41368), (32, 41323), (33, 41320), (35, 41308), (38, 41248),

Gene: Tolls_56 Start: 38936, Stop: 38763, Start Num: 22
Candidate Starts for Tolls_56:
(8, 39116), (10, 39092), (11, 39086), (14, 39035), (17, 38975), (Start: 22 @38936 has 25 MA's), (26, 38903), (34, 38837), (35, 38831), (37, 38792),

Gene: Troje_57 Start: 39428, Stop: 39255, Start Num: 22

Candidate Starts for Troje_57:

(2, 39620), (4, 39587), (8, 39572), (12, 39509), (Start: 22 @39428 has 25 MA's), (26, 39395), (34, 39329), (36, 39314), (37, 39284),

Gene: Typhonomachy_54 Start: 38991, Stop: 38818, Start Num: 22

Candidate Starts for Typhonomachy_54:

(2, 39210), (3, 39204), (7, 39168), (8, 39162), (11, 39132), (12, 39099), (13, 39093), (Start: 22 @38991 has 25 MA's), (26, 38958), (28, 38949), (35, 38886), (37, 38847),

Gene: Vine_62 Start: 41876, Stop: 41682, Start Num: 16

Candidate Starts for Vine_62:

(1, 42215), (6, 42023), (9, 42014), (Start: 16 @41876 has 25 MA's), (25, 41837), (29, 41810), (32, 41765), (33, 41762), (35, 41750), (37, 41711), (38, 41690),

Gene: Wallaby_53 Start: 38451, Stop: 38299, Start Num: 25

Candidate Starts for Wallaby_53:

(9, 38649), (15, 38562), (Start: 16 @38511 has 25 MA's), (19, 38481), (25, 38451), (35, 38364),

Gene: Wolfwood_53 Start: 38425, Stop: 38273, Start Num: 25

Candidate Starts for Wolfwood_53:

(9, 38623), (15, 38536), (Start: 16 @38485 has 25 MA's), (19, 38455), (25, 38425), (35, 38338),

Gene: Yarn_52 Start: 38693, Stop: 38520, Start Num: 22

Candidate Starts for Yarn_52:

(8, 38873), (10, 38849), (11, 38843), (14, 38792), (17, 38732), (Start: 22 @38693 has 25 MA's), (26, 38660), (34, 38594), (35, 38588), (37, 38549),

Gene: Yucky_62 Start: 41668, Stop: 41474, Start Num: 16

Candidate Starts for Yucky_62:

(6, 41815), (9, 41806), (Start: 16 @41668 has 25 MA's), (25, 41629), (29, 41602), (32, 41557), (33, 41554), (35, 41542), (37, 41503), (38, 41482),

Gene: Yummy_57 Start: 39137, Stop: 38964, Start Num: 22

Candidate Starts for Yummy_57:

(2, 39329), (4, 39296), (8, 39281), (12, 39218), (Start: 22 @39137 has 25 MA's), (26, 39104), (34, 39038), (36, 39023), (37, 38993),

Gene: Zareef_51 Start: 38507, Stop: 38295, Start Num: 16

Candidate Starts for Zareef_51:

(9, 38645), (15, 38558), (Start: 16 @38507 has 25 MA's), (19, 38477), (25, 38447), (35, 38360),