



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 292619 Report

This analysis was run 04/18/26 on database version 643.

Pham number 292619 has 123 members, 21 are drafts.

Phages represented in each track:

- Track 1 : Phlorence_7
- Track 2 : Conspiracy_7, Lev2_7, ForGetIt_7, PickleBack_7, Tiger_7, Archetta_7
- Track 3 : EITiger69_7, Jabiru_7, Airmid_7, Benedict_7
- Track 4 : Milcery_7
- Track 5 : Cuco_7, Coog_7, HuhtaEnerson15_7, LittleCherry_7, Micasa_7, Bonamassa_7, Midas2_7
- Track 6 : George_6
- Track 7 : Discoknowium_7, Zolita_6, Aragog_7, SydNat_7, Ghouboy_7
- Track 8 : Theia_6
- Track 9 : Jovo_7
- Track 10 : Florence1_7
- Track 11 : Prinashe11_8
- Track 12 : Bluefalcon_6
- Track 13 : Florence4_8
- Track 14 : Tarynearal_6
- Track 15 : AgentM_7
- Track 16 : MarysWell_6
- Track 17 : Twigg_7
- Track 18 : Swirley_7
- Track 19 : Dublin_6
- Track 20 : 8UZL_27, FF47_27, Maco6_25
- Track 21 : Muddy_27
- Track 22 : Salvus_28, LongHai_28
- Track 23 : JacoRen57_25
- Track 24 : Sparky_26
- Track 25 : Penelope2018_35, Thoth_35, Delton_35, Nova_35, Butterscotch_35, Erk16_35, PLOT_36, BigMama_33, Prager_35, Chill_36, SirHarley_34, KandZ_35, Troll4_35, Adjutor_36, Mopey_35, Visconti_35, PBI1_35, WaldoWhy_36, Gumball_34, SuperheroCarly_35, Helpful_36
- Track 26 : Phalaborwa_35
- Track 27 : Giuseppe_35
- Track 28 : Hawkeye_38
- Track 29 : Oaker_34, Cborch11_35, Megatron06_36, Konstantine_39, BobtimousPrime_33, Damien_34
- Track 30 : Phreeze_34
- Track 31 : Beckerton_34
- Track 32 : Predator_36

- Track 33 : Puissant_33
- Track 34 : Thumb_34
- Track 35 : Babsiella_26, HC_27
- Track 36 : Stuck_29
- Track 37 : Che9c_25
- Track 38 : DanBing_26, DHan_27, ZhongYanYuan_26
- Track 39 : Crossroads_27, LilDestine_27, Loadrie_27, Vetrix_27, Underpass_27, Wigglewiggles_27, Lynnae_27, GuuelaD_27, Gardann_27, MkaliMitinis3_27, Nicholasp3_27
- Track 40 : Itos_27, Breezona_27, Netyap_27, Winky_27, Faith1_27, BigCheese_27, DrSeegs_27, Miley16_27
- Track 41 : Tourach_27
- Track 42 : Baoshan_26, Claus_27
- Track 43 : Wilder_27, Kahlid_27
- Track 44 : Hafay_27, Soap141_27, Sarshaun_27, OverPar_28, Lewan_27
- Track 45 : BobsGarage_27
- Track 46 : Dynamo_26
- Track 47 : Nazo_26, BigNuz_26
- Track 48 : Phayonce_26
- Track 49 : ThulaThula_26
- Track 50 : RRH1_05

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

The start number called the most often in the published annotations is 19, it was called in 77 of the 102 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adjutor_36, AgentM_7, Aragog_7, Archetta_7, Baoshan_26, BigCheese_27, BigMama_33, BigNuz_26, Bluefalcon_6, Bonamassa_7, Breezona_27, Butterscotch_35, Chill_36, Claus_27, Conspiracy_7, Coog_7, Crossroads_27, Cuco_7, Delton_35, Discoknowium_7, DrSeegs_27, Dublin_6, Dynamo_26, Erk16_35, Faith1_27, Florence4_8, ForGetIt_7, Gardann_27, George_6, Ghoulyboy_7, Giuseppe_35, Gumball_34, GuuelaD_27, Hawkeye_38, Helpful_36, HuhtaEnerson15_7, Itos_27, JacoRen57_25, Kahlid_27, KandZ_35, Lev2_7, LilDestine_27, LittleCherry_7, Loadrie_27, Lynnae_27, Micasa_7, Midas2_7, Milcery_7, Miley16_27, MkaliMitinis3_27, Mopey_35, Nazo_26, Netyap_27, Nicholasp3_27, Nova_35, PBI1_35, PLOT_36, Penelope2018_35, Phalaborwa_35, Phlorence_7, PickleBack_7, Prager_35, SirHarley_34, SuperheroCarly_35, Swirley_7, SydNat_7, Tarynearal_6, Theia_6, Thoth_35, Tiger_7, Tourach_27, Troll4_35, Twigg_7, Underpass_27, Vetrix_27, Visconti_35, WaldoWhy_36, Wigglewiggles_27, Wilder_27, Winky_27, Zolita_6,

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

- Airmid_7, Benedict_7, BobsGarage_27, DHan_27, DanBing_26, EITiger69_7, Florence1_7, Hafay_27, Jabiru_7, Jovo_7, Lewan_27, MarysWell_6, OverPar_28, Prinashe11_8, Sarshaun_27, Soap141_27, ZhongYanYuan_26,

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

- 8UZL_27, Babsiella_26, Beckerton_34, BobtimousPrime_33, Cborch11_35, Che9c_25, Damien_34, FF47_27, HC_27, Konstantine_39, LongHai_28, Maco6_25, Megatron06_36, Muddy_27, Oaker_34, Phayonce_26, Phreeze_34, Predator_36, Puissant_33, RRH1_05, Salvus_28, Sparky_26, Stuck_29, ThulaThula_26, Thumb_34,

Summary by start number:

Start 13:

- Found in 4 of 123 (3.3%) of genes in pham
- Manual Annotations of this start: 4 of 102
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Airmid_7 (A5), Benedict_7 (A5), EITiger69_7 (A5), Jabiru_7 (A5),

Start 17:

- Found in 11 of 123 (8.9%) of genes in pham
- Manual Annotations of this start: 9 of 102
- Called 90.9% of time when present
- Phage (with cluster) where this start called: Beckerton_34 (H1), BobtimousPrime_33 (H1), Cborch11_35 (H1), Damien_34 (H1), Konstantine_39 (H1), Megatron06_36 (H1), Oaker_34 (H1), Phreeze_34 (H1), Predator_36 (H1), Thumb_34 (H1),

Start 18:

- Found in 6 of 123 (4.9%) of genes in pham
- Manual Annotations of this start: 2 of 102
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 8UZL_27 (AB), FF47_27 (AB), LongHai_28 (AB), Maco6_25 (AB), Muddy_27 (AB), Salvus_28 (AB),

Start 19:

- Found in 98 of 123 (79.7%) of genes in pham
- Manual Annotations of this start: 77 of 102
- Called 82.7% of time when present
- Phage (with cluster) where this start called: Adjutor_36 (D1), AgentM_7 (A5), Aragog_7 (A5), Archetta_7 (A5), Baoshan_26 (L2), BigCheese_27 (L2), BigMama_33 (D1), BigNuz_26 (P4), Bluefalcon_6 (A5), Bonamassa_7 (A5), Breezona_27 (L2), Butterscotch_35 (D1), Chill_36 (D1), Claus_27 (L2), Conspiracy_7 (A5), Coog_7 (A5), Crossroads_27 (L2), Cuco_7 (A5), Delton_35 (D1), Discoknowium_7 (A5), DrSeegs_27 (L2), Dublin_6 (A5), Dynamo_26 (P1), Erk16_35 (D1), Faith1_27 (L2), Florence4_8 (A5), ForGetIt_7 (A5), Gardann_27 (L2), George_6 (A5), Ghoulyboy_7 (A5), Giuseppe_35 (D1), Gumball_34 (D1), GuuelaD_27 (L2), Hawkeye_38 (D2), Helpful_36 (D1), HuhtaEnerson15_7 (A5), Itos_27 (L2), JacoRen57_25 (AB), Kahlid_27 (L2), KandZ_35 (D1), Lev2_7 (A5), LilDestine_27 (L2), LittleCherry_7 (A5), Loadrie_27 (L2), Lynnae_27 (L2), Micasa_7 (A5), Midas2_7 (A5), Milcery_7 (A5), Miley16_27 (L2), MkaliMitinis3_27 (L2), Mopey_35 (D1), Nazo_26 (P4), Netyap_27 (L2), Nicholasp3_27 (L2), Nova_35 (D1), PBI1_35 (D1), PLOT_36 (D1), Penelope2018_35 (D1), Phalaborwa_35 (D1), Phlorence_7 (A5), PickleBack_7 (A5), Prager_35 (D1), SirHarley_34 (D1), SuperheroCarly_35 (D1), Swirley_7 (A5), SydNat_7 (A5), Tarynearal_6 (A5), Theia_6 (A5), Thoth_35 (D1), Tiger_7 (A5), Tourach_27 (L2), Troll4_35 (D1), Twigg_7 (A5), Underpass_27 (L2), Vetrix_27 (L2), Visconti_35 (D1), WaldoWhy_36 (D1), Wigglewiggle_27 (L2), Wilder_27 (L2), Winky_27 (L2), Zolita_6 (A5),

Start 23:

- Found in 5 of 123 (4.1%) of genes in pham
- Manual Annotations of this start: 4 of 102
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Babsiella_26 (I1), Che9c_25 (I2), HC_27 (I1), Sparky_26 (AF), Stuck_29 (I2),

Start 24:

- Found in 2 of 123 (1.6%) of genes in pham
- Manual Annotations of this start: 2 of 102
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Phayonce_26 (P5), ThulaThula_26 (P5),

Start 25:

- Found in 115 of 123 (93.5%) of genes in pham
- Manual Annotations of this start: 4 of 102
- Called 12.2% of time when present
- Phage (with cluster) where this start called: BobsGarage_27 (L2), DHan_27 (L2), DanBing_26 (L2), Florence1_7 (A5), Hafay_27 (L2), Jovo_7 (A5), Lewan_27 (L2), MarysWell_6 (A5), OverPar_28 (L2), Prinash11_8 (A5), Puissant_33 (H1), Sarshaun_27 (L2), Soap141_27 (L2), ZhongYanYuan_26 (L2),

Start 50:

- Found in 1 of 123 (0.8%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: RRH1_05 (singleton),

Summary by clusters:

There are 13 clusters represented in this pham: singleton, AB, P4, P5, I1, H1, P1, A5, AF, L2, D2, I2, D1,

Info for manual annotations of cluster A5:

- Start number 13 was manually annotated 4 times for cluster A5.
- Start number 19 was manually annotated 27 times for cluster A5.
- Start number 25 was manually annotated 2 times for cluster A5.

Info for manual annotations of cluster AB:

- Start number 18 was manually annotated 2 times for cluster AB.
- Start number 19 was manually annotated 1 time for cluster AB.

Info for manual annotations of cluster AF:

- Start number 23 was manually annotated 1 time for cluster AF.

Info for manual annotations of cluster D1:

- Start number 19 was manually annotated 22 times for cluster D1.

Info for manual annotations of cluster D2:

- Start number 19 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster H1:

- Start number 17 was manually annotated 9 times for cluster H1.

Info for manual annotations of cluster I1:

- Start number 23 was manually annotated 2 times for cluster I1.

Info for manual annotations of cluster I2:

- Start number 23 was manually annotated 1 time for cluster I2.

Info for manual annotations of cluster L2:

- Start number 19 was manually annotated 23 times for cluster L2.
- Start number 25 was manually annotated 2 times for cluster L2.

Info for manual annotations of cluster P1:

- Start number 19 was manually annotated 1 time for cluster P1.

Info for manual annotations of cluster P4:

- Start number 19 was manually annotated 2 times for cluster P4.

Info for manual annotations of cluster P5:

- Start number 24 was manually annotated 2 times for cluster P5.

Gene Information:

Gene: 8UZL_27 Start: 23139, Stop: 24086, Start Num: 18

Candidate Starts for 8UZL_27:

(Start: 18 @23139 has 2 MA's), (Start: 25 @23190 has 4 MA's), (35, 23271), (40, 23316), (44, 23358), (52, 23457), (64, 23529), (68, 23589), (74, 23643), (76, 23661), (78, 23688), (81, 23709), (83, 23739), (93, 23820), (96, 23856), (108, 23952),

Gene: Adjutor_36 Start: 30210, Stop: 31193, Start Num: 19

Candidate Starts for Adjutor_36:

(1, 29943), (2, 30000), (Start: 19 @30210 has 77 MA's), (Start: 25 @30261 has 4 MA's), (26, 30279), (29, 30294), (40, 30387), (44, 30429), (64, 30597), (68, 30657), (78, 30768), (80, 30777), (81, 30789), (82, 30798), (83, 30819), (85, 30828), (93, 30900), (99, 30954), (104, 30996), (118, 31146),

Gene: AgentM_7 Start: 4522, Stop: 5436, Start Num: 19

Candidate Starts for AgentM_7:

(9, 4438), (Start: 19 @4522 has 77 MA's), (Start: 25 @4573 has 4 MA's), (27, 4594), (30, 4615), (39, 4687), (49, 4813), (64, 4906), (76, 5032), (82, 5089), (89, 5155), (103, 5278), (106, 5296), (110, 5326), (115, 5368), (118, 5422),

Gene: Airmid_7 Start: 4242, Stop: 5183, Start Num: 13

Candidate Starts for Airmid_7:

(Start: 13 @4242 has 4 MA's), (Start: 19 @4266 has 77 MA's), (21, 4281), (Start: 25 @4317 has 4 MA's), (28, 4344), (30, 4359), (38, 4413), (41, 4443), (43, 4455), (49, 4557), (51, 4569), (64, 4650), (67, 4701), (72, 4740), (76, 4776), (81, 4824), (92, 4932), (103, 5025), (110, 5073), (114, 5106), (118, 5169),

Gene: Aragog_7 Start: 4552, Stop: 5466, Start Num: 19

Candidate Starts for Aragog_7:

(9, 4468), (Start: 19 @4552 has 77 MA's), (Start: 25 @4603 has 4 MA's), (27, 4624), (30, 4645), (42, 4732), (43, 4741), (49, 4843), (64, 4936), (76, 5062), (82, 5119), (89, 5185), (103, 5308), (106, 5326), (110, 5356), (115, 5398), (118, 5452),

Gene: Archetta_7 Start: 4261, Stop: 5175, Start Num: 19

Candidate Starts for Archetta_7:

(Start: 19 @4261 has 77 MA's), (Start: 25 @4312 has 4 MA's), (27, 4333), (30, 4354), (39, 4426), (49, 4552), (64, 4645), (76, 4771), (82, 4828), (89, 4894), (92, 4924), (103, 5017), (110, 5065), (115, 5107), (118, 5161),

Gene: Babsiella_26 Start: 23158, Stop: 24111, Start Num: 23

Candidate Starts for Babsiella_26:

(15, 23122), (Start: 23 @23158 has 4 MA's), (32, 23233), (36, 23269), (45, 23398), (47, 23425), (58, 23500), (59, 23503), (64, 23542), (65, 23554), (81, 23746), (90, 23821), (99, 23905), (108, 23974),

Gene: Baoshan_26 Start: 25174, Stop: 26124, Start Num: 19

Candidate Starts for Baoshan_26:

(Start: 19 @25174 has 77 MA's), (Start: 25 @25225 has 4 MA's), (29, 25258), (32, 25276), (38, 25324), (44, 25408), (48, 25474), (64, 25585), (69, 25645), (75, 25708), (80, 25759), (88, 25840), (92, 25873), (96, 25912), (97, 25915), (102, 25951), (113, 26011),

Gene: Beckerton_34 Start: 31940, Stop: 32905, Start Num: 17

Candidate Starts for Beckerton_34:

(Start: 17 @31940 has 9 MA's), (Start: 25 @31991 has 4 MA's), (26, 32009), (37, 32087), (40, 32117), (44, 32159), (46, 32210), (54, 32267), (64, 32330), (68, 32390), (78, 32507), (80, 32516), (81, 32528), (83, 32558), (87, 32591), (93, 32639), (107, 32744), (108, 32765), (111, 32777),

Gene: Benedict_7 Start: 4244, Stop: 5185, Start Num: 13

Candidate Starts for Benedict_7:

(Start: 13 @4244 has 4 MA's), (Start: 19 @4268 has 77 MA's), (21, 4283), (Start: 25 @4319 has 4 MA's), (28, 4346), (30, 4361), (38, 4415), (41, 4445), (43, 4457), (49, 4559), (51, 4571), (64, 4652), (67, 4703), (72, 4742), (76, 4778), (81, 4826), (92, 4934), (103, 5027), (110, 5075), (114, 5108), (118, 5171),

Gene: BigCheese_27 Start: 25353, Stop: 26303, Start Num: 19

Candidate Starts for BigCheese_27:

(Start: 19 @25353 has 77 MA's), (Start: 25 @25404 has 4 MA's), (29, 25437), (40, 25533), (44, 25587), (48, 25653), (64, 25764), (69, 25824), (75, 25887), (80, 25938), (88, 26019), (96, 26091), (97, 26094), (102, 26130), (113, 26190),

Gene: BigMama_33 Start: 30286, Stop: 31269, Start Num: 19

Candidate Starts for BigMama_33:

(1, 30019), (2, 30076), (Start: 19 @30286 has 77 MA's), (Start: 25 @30337 has 4 MA's), (26, 30355), (29, 30370), (40, 30463), (44, 30505), (64, 30673), (68, 30733), (78, 30844), (80, 30853), (81, 30865), (82, 30874), (83, 30895), (85, 30904), (93, 30976), (99, 31030), (104, 31072), (118, 31222),

Gene: BigNuz_26 Start: 23755, Stop: 24702, Start Num: 19

Candidate Starts for BigNuz_26:

(Start: 19 @23755 has 77 MA's), (Start: 25 @23806 has 4 MA's), (29, 23839), (33, 23860), (34, 23866), (35, 23887), (40, 23932), (44, 23974), (54, 24082), (64, 24145), (78, 24319), (80, 24328), (81, 24340), (83, 24370), (87, 24403), (103, 24541), (104, 24547), (110, 24592), (118, 24688), (119, 24691), (120, 24694),

Gene: Bluefalcon_6 Start: 4519, Stop: 5436, Start Num: 19

Candidate Starts for Bluefalcon_6:

(9, 4435), (Start: 19 @4519 has 77 MA's), (Start: 25 @4570 has 4 MA's), (27, 4591), (30, 4612), (42, 4699), (43, 4708), (44, 4735), (49, 4810), (53, 4840), (64, 4903), (76, 5032), (82, 5089), (92, 5185), (103, 5278), (110, 5326), (116, 5389), (118, 5422),

Gene: BobsGarage_27 Start: 25404, Stop: 26303, Start Num: 25

Candidate Starts for BobsGarage_27:

(Start: 19 @25353 has 77 MA's), (Start: 25 @25404 has 4 MA's), (29, 25437), (40, 25533), (44, 25587), (48, 25653), (64, 25764), (69, 25824), (75, 25887), (80, 25938), (88, 26019), (96, 26091), (97, 26094), (102, 26130), (113, 26190),

Gene: BobtimousPrime_33 Start: 31860, Stop: 32825, Start Num: 17

Candidate Starts for BobtimousPrime_33:

(Start: 17 @31860 has 9 MA's), (Start: 25 @31911 has 4 MA's), (26, 31929), (37, 32007), (40, 32037), (44, 32079), (46, 32130), (54, 32187), (59, 32211), (64, 32250), (68, 32310), (78, 32427), (80, 32436), (81, 32448), (83, 32478), (87, 32511), (93, 32559), (107, 32664), (108, 32685), (111, 32697),

Gene: Bonamassa_7 Start: 4441, Stop: 5358, Start Num: 19

Candidate Starts for Bonamassa_7:

(Start: 19 @4441 has 77 MA's), (Start: 25 @4492 has 4 MA's), (27, 4513), (30, 4534), (39, 4606), (42, 4621), (43, 4630), (44, 4657), (49, 4732), (53, 4762), (64, 4825), (76, 4954), (82, 5011), (92, 5107), (103, 5200), (110, 5248), (116, 5311), (118, 5344), (119, 5347),

Gene: Breezona_27 Start: 25353, Stop: 26303, Start Num: 19

Candidate Starts for Breezona_27:

(Start: 19 @25353 has 77 MA's), (Start: 25 @25404 has 4 MA's), (29, 25437), (40, 25533), (44, 25587), (48, 25653), (64, 25764), (69, 25824), (75, 25887), (80, 25938), (88, 26019), (96, 26091), (97, 26094), (102, 26130), (113, 26190),

Gene: Butterscotch_35 Start: 30270, Stop: 31253, Start Num: 19

Candidate Starts for Butterscotch_35:

(1, 30003), (2, 30060), (Start: 19 @30270 has 77 MA's), (Start: 25 @30321 has 4 MA's), (26, 30339), (29, 30354), (40, 30447), (44, 30489), (64, 30657), (68, 30717), (78, 30828), (80, 30837), (81, 30849), (82, 30858), (83, 30879), (85, 30888), (93, 30960), (99, 31014), (104, 31056), (118, 31206),

Gene: Cborch11_35 Start: 31405, Stop: 32370, Start Num: 17

Candidate Starts for Cborch11_35:

(Start: 17 @31405 has 9 MA's), (Start: 25 @31456 has 4 MA's), (26, 31474), (37, 31552), (40, 31582), (44, 31624), (46, 31675), (54, 31732), (59, 31756), (64, 31795), (68, 31855), (78, 31972), (80, 31981), (81, 31993), (83, 32023), (87, 32056), (93, 32104), (107, 32209), (108, 32230), (111, 32242),

Gene: Che9c_25 Start: 23257, Stop: 24210, Start Num: 23

Candidate Starts for Che9c_25:

(4, 23080), (Start: 23 @23257 has 4 MA's), (36, 23368), (44, 23464), (45, 23497), (47, 23524), (58, 23599), (64, 23641), (65, 23653), (91, 23944), (99, 24004), (108, 24073),

Gene: Chill_36 Start: 30276, Stop: 31259, Start Num: 19

Candidate Starts for Chill_36:

(1, 30009), (2, 30066), (Start: 19 @30276 has 77 MA's), (Start: 25 @30327 has 4 MA's), (26, 30345), (29, 30360), (40, 30453), (44, 30495), (64, 30663), (68, 30723), (78, 30834), (80, 30843), (81, 30855), (82, 30864), (83, 30885), (85, 30894), (93, 30966), (99, 31020), (104, 31062), (118, 31212),

Gene: Claus_27 Start: 25330, Stop: 26280, Start Num: 19

Candidate Starts for Claus_27:

(Start: 19 @25330 has 77 MA's), (Start: 25 @25381 has 4 MA's), (29, 25414), (32, 25432), (38, 25480), (44, 25564), (48, 25630), (64, 25741), (69, 25801), (75, 25864), (80, 25915), (88, 25996), (92, 26029), (96, 26068), (97, 26071), (102, 26107), (113, 26167),

Gene: Conspiracy_7 Start: 4262, Stop: 5176, Start Num: 19

Candidate Starts for Conspiracy_7:

(Start: 19 @4262 has 77 MA's), (Start: 25 @4313 has 4 MA's), (27, 4334), (30, 4355), (39, 4427), (49, 4553), (64, 4646), (76, 4772), (82, 4829), (89, 4895), (92, 4925), (103, 5018), (110, 5066), (115, 5108), (118, 5162),

Gene: Coog_7 Start: 4409, Stop: 5326, Start Num: 19

Candidate Starts for Coog_7:

(Start: 19 @4409 has 77 MA's), (Start: 25 @4460 has 4 MA's), (27, 4481), (30, 4502), (39, 4574), (42, 4589), (43, 4598), (44, 4625), (49, 4700), (53, 4730), (64, 4793), (76, 4922), (82, 4979), (92, 5075), (103, 5168), (110, 5216), (116, 5279), (118, 5312), (119, 5315),

Gene: Crossroads_27 Start: 25353, Stop: 26303, Start Num: 19

Candidate Starts for Crossroads_27:

(Start: 19 @25353 has 77 MA's), (Start: 25 @25404 has 4 MA's), (29, 25437), (38, 25503), (40, 25533), (44, 25587), (48, 25653), (64, 25764), (69, 25824), (75, 25887), (80, 25938), (88, 26019), (96, 26091), (97, 26094), (102, 26130), (113, 26190),

Gene: Cuco_7 Start: 4440, Stop: 5357, Start Num: 19

Candidate Starts for Cuco_7:

(Start: 19 @4440 has 77 MA's), (Start: 25 @4491 has 4 MA's), (27, 4512), (30, 4533), (39, 4605), (42, 4620), (43, 4629), (44, 4656), (49, 4731), (53, 4761), (64, 4824), (76, 4953), (82, 5010), (92, 5106), (103, 5199), (110, 5247), (116, 5310), (118, 5343), (119, 5346),

Gene: DHan_27 Start: 25317, Stop: 26216, Start Num: 25

Candidate Starts for DHan_27:

(Start: 19 @25266 has 77 MA's), (Start: 25 @25317 has 4 MA's), (29, 25350), (32, 25368), (38, 25416), (44, 25500), (48, 25566), (64, 25677), (69, 25737), (75, 25800), (80, 25851), (88, 25932), (92, 25965), (96, 26004), (97, 26007), (102, 26043), (113, 26103),

Gene: Damien_34 Start: 31406, Stop: 32371, Start Num: 17

Candidate Starts for Damien_34:

(Start: 17 @31406 has 9 MA's), (Start: 25 @31457 has 4 MA's), (26, 31475), (37, 31553), (40, 31583), (44, 31625), (46, 31676), (54, 31733), (59, 31757), (64, 31796), (68, 31856), (78, 31973), (80, 31982), (81, 31994), (83, 32024), (87, 32057), (93, 32105), (107, 32210), (108, 32231), (111, 32243),

Gene: DanBing_26 Start: 25221, Stop: 26120, Start Num: 25

Candidate Starts for DanBing_26:

(Start: 19 @25170 has 77 MA's), (Start: 25 @25221 has 4 MA's), (29, 25254), (32, 25272), (38, 25320), (44, 25404), (48, 25470), (64, 25581), (69, 25641), (75, 25704), (80, 25755), (88, 25836), (92, 25869), (96, 25908), (97, 25911), (102, 25947), (113, 26007),

Gene: Delton_35 Start: 30282, Stop: 31265, Start Num: 19

Candidate Starts for Delton_35:

(1, 30015), (2, 30072), (Start: 19 @30282 has 77 MA's), (Start: 25 @30333 has 4 MA's), (26, 30351), (29, 30366), (40, 30459), (44, 30501), (64, 30669), (68, 30729), (78, 30840), (80, 30849), (81, 30861), (82, 30870), (83, 30891), (85, 30900), (93, 30972), (99, 31026), (104, 31068), (118, 31218),

Gene: Discoknowium_7 Start: 4552, Stop: 5466, Start Num: 19

Candidate Starts for Discoknowium_7:

(9, 4468), (Start: 19 @4552 has 77 MA's), (Start: 25 @4603 has 4 MA's), (27, 4624), (30, 4645), (42, 4732), (43, 4741), (49, 4843), (64, 4936), (76, 5062), (82, 5119), (89, 5185), (103, 5308), (106, 5326), (110, 5356), (115, 5398), (118, 5452),

Gene: DrSeegs_27 Start: 25353, Stop: 26303, Start Num: 19

Candidate Starts for DrSeegs_27:

(Start: 19 @25353 has 77 MA's), (Start: 25 @25404 has 4 MA's), (29, 25437), (40, 25533), (44, 25587), (48, 25653), (64, 25764), (69, 25824), (75, 25887), (80, 25938), (88, 26019), (96, 26091), (97, 26094), (102, 26130), (113, 26190),

Gene: Dublin_6 Start: 4408, Stop: 5325, Start Num: 19

Candidate Starts for Dublin_6:

(9, 4324), (Start: 19 @4408 has 77 MA's), (Start: 25 @4459 has 4 MA's), (27, 4480), (30, 4501), (42, 4588), (43, 4597), (44, 4624), (49, 4699), (53, 4729), (64, 4792), (76, 4921), (82, 4978), (92, 5074), (103, 5167), (110, 5215), (116, 5278), (118, 5311), (119, 5314),

Gene: Dynamo_26 Start: 23519, Stop: 24466, Start Num: 19

Candidate Starts for Dynamo_26:

(3, 23309), (5, 23387), (6, 23390), (14, 23495), (Start: 19 @23519 has 77 MA's), (Start: 25 @23570 has 4 MA's), (40, 23696), (44, 23738), (46, 23789), (54, 23846), (64, 23909), (78, 24083), (80, 24092), (81, 24104), (83, 24134), (87, 24167), (99, 24269), (103, 24305), (110, 24356), (116, 24419), (118, 24452), (119, 24455), (120, 24458),

Gene: EITiger69_7 Start: 4242, Stop: 5183, Start Num: 13

Candidate Starts for EITiger69_7:

(Start: 13 @4242 has 4 MA's), (Start: 19 @4266 has 77 MA's), (21, 4281), (Start: 25 @4317 has 4 MA's), (28, 4344), (30, 4359), (38, 4413), (41, 4443), (43, 4455), (49, 4557), (51, 4569), (64, 4650), (67, 4701), (72, 4740), (76, 4776), (81, 4824), (92, 4932), (103, 5025), (110, 5073), (114, 5106), (118, 5169),

Gene: Erk16_35 Start: 30273, Stop: 31262, Start Num: 19

Candidate Starts for Erk16_35:

(1, 30006), (2, 30063), (Start: 19 @30273 has 77 MA's), (Start: 25 @30324 has 4 MA's), (26, 30342), (29, 30357), (40, 30450), (44, 30492), (64, 30660), (68, 30720), (78, 30837), (80, 30846), (81, 30858), (82, 30867), (83, 30888), (85, 30897), (93, 30969), (99, 31023), (104, 31065), (118, 31215),

Gene: FF47_27 Start: 23066, Stop: 24013, Start Num: 18

Candidate Starts for FF47_27:

(Start: 18 @23066 has 2 MA's), (Start: 25 @23117 has 4 MA's), (35, 23198), (40, 23243), (44, 23285), (52, 23384), (64, 23456), (68, 23516), (74, 23570), (76, 23588), (78, 23615), (81, 23636), (83, 23666), (93, 23747), (96, 23783), (108, 23879),

Gene: Faith1_27 Start: 25353, Stop: 26303, Start Num: 19

Candidate Starts for Faith1_27:

(Start: 19 @25353 has 77 MA's), (Start: 25 @25404 has 4 MA's), (29, 25437), (40, 25533), (44, 25587), (48, 25653), (64, 25764), (69, 25824), (75, 25887), (80, 25938), (88, 26019), (96, 26091), (97, 26094), (102, 26130), (113, 26190),

Gene: Florence1_7 Start: 4280, Stop: 5146, Start Num: 25

Candidate Starts for Florence1_7:

(7, 4115), (Start: 19 @4229 has 77 MA's), (Start: 25 @4280 has 4 MA's), (27, 4301), (30, 4322), (39, 4394), (42, 4409), (43, 4418), (44, 4445), (49, 4520), (53, 4550), (64, 4613), (76, 4742), (82, 4799), (92, 4895), (103, 4988), (110, 5036), (115, 5078), (116, 5099), (118, 5132),

Gene: Florence4_8 Start: 4229, Stop: 5146, Start Num: 19

Candidate Starts for Florence4_8:

(7, 4115), (Start: 19 @4229 has 77 MA's), (Start: 25 @4280 has 4 MA's), (27, 4301), (30, 4322), (39, 4394), (42, 4409), (43, 4418), (44, 4445), (49, 4520), (53, 4550), (64, 4613), (76, 4742), (82, 4799), (92, 4895), (103, 4988), (110, 5036), (115, 5078), (116, 5099), (118, 5132),

Gene: ForGetIt_7 Start: 4288, Stop: 5202, Start Num: 19

Candidate Starts for ForGetIt_7:

(Start: 19 @4288 has 77 MA's), (Start: 25 @4339 has 4 MA's), (27, 4360), (30, 4381), (39, 4453), (49, 4579), (64, 4672), (76, 4798), (82, 4855), (89, 4921), (92, 4951), (103, 5044), (110, 5092), (115, 5134), (118, 5188),

Gene: Gardann_27 Start: 25355, Stop: 26305, Start Num: 19

Candidate Starts for Gardann_27:

(Start: 19 @25355 has 77 MA's), (Start: 25 @25406 has 4 MA's), (29, 25439), (38, 25505), (40, 25535), (44, 25589), (48, 25655), (64, 25766), (69, 25826), (75, 25889), (80, 25940), (88, 26021), (96, 26093), (97, 26096), (102, 26132), (113, 26192),

Gene: George_6 Start: 4441, Stop: 5358, Start Num: 19

Candidate Starts for George_6:

(7, 4324), (Start: 19 @4441 has 77 MA's), (Start: 25 @4492 has 4 MA's), (27, 4513), (30, 4534), (39, 4606), (42, 4621), (43, 4630), (44, 4657), (49, 4732), (53, 4762), (64, 4825), (76, 4954), (82, 5011), (92, 5107), (103, 5200), (110, 5248), (116, 5311), (118, 5344), (119, 5347),

Gene: Ghouboy_7 Start: 4521, Stop: 5435, Start Num: 19

Candidate Starts for Ghouboy_7:

(9, 4437), (Start: 19 @4521 has 77 MA's), (Start: 25 @4572 has 4 MA's), (27, 4593), (30, 4614), (42, 4701), (43, 4710), (49, 4812), (64, 4905), (76, 5031), (82, 5088), (89, 5154), (103, 5277), (106, 5295), (110, 5325), (115, 5367), (118, 5421),

Gene: Giuseppe_35 Start: 30271, Stop: 31254, Start Num: 19

Candidate Starts for Giuseppe_35:

(1, 29995), (2, 30052), (Start: 19 @30271 has 77 MA's), (Start: 25 @30322 has 4 MA's), (26, 30340), (29, 30355), (40, 30448), (44, 30490), (64, 30658), (68, 30718), (78, 30829), (80, 30838), (81, 30850), (82, 30859), (83, 30880), (85, 30889), (93, 30961), (99, 31015), (104, 31057), (118, 31207),

Gene: Gumball_34 Start: 30220, Stop: 31203, Start Num: 19

Candidate Starts for Gumball_34:

(1, 29953), (2, 30010), (Start: 19 @30220 has 77 MA's), (Start: 25 @30271 has 4 MA's), (26, 30289), (29, 30304), (40, 30397), (44, 30439), (64, 30607), (68, 30667), (78, 30778), (80, 30787), (81, 30799), (82, 30808), (83, 30829), (85, 30838), (93, 30910), (99, 30964), (104, 31006), (118, 31156),

Gene: GuuelaD_27 Start: 25387, Stop: 26337, Start Num: 19

Candidate Starts for GuuelaD_27:

(Start: 19 @25387 has 77 MA's), (Start: 25 @25438 has 4 MA's), (29, 25471), (38, 25537), (40, 25567), (44, 25621), (48, 25687), (64, 25798), (69, 25858), (75, 25921), (80, 25972), (88, 26053), (96, 26125), (97, 26128), (102, 26164), (113, 26224),

Gene: HC_27 Start: 23214, Stop: 24167, Start Num: 23

Candidate Starts for HC_27:

(15, 23178), (Start: 23 @23214 has 4 MA's), (32, 23289), (36, 23325), (45, 23454), (47, 23481), (58, 23556), (59, 23559), (64, 23598), (65, 23610), (81, 23802), (90, 23877), (99, 23961), (108, 24030),

Gene: Hafay_27 Start: 25437, Stop: 26336, Start Num: 25

Candidate Starts for Hafay_27:

(Start: 19 @25386 has 77 MA's), (Start: 25 @25437 has 4 MA's), (29, 25470), (38, 25536), (40, 25566), (44, 25620), (48, 25686), (64, 25797), (69, 25857), (75, 25920), (80, 25971), (88, 26052), (96, 26124), (97, 26127), (102, 26163), (113, 26223),

Gene: Hawkeye_38 Start: 30443, Stop: 31420, Start Num: 19

Candidate Starts for Hawkeye_38:

(Start: 19 @30443 has 77 MA's), (Start: 25 @30494 has 4 MA's), (37, 30590), (40, 30620), (44, 30662), (64, 30830), (66, 30878), (78, 30998), (81, 31019), (83, 31049), (86, 31061), (87, 31082), (89, 31097), (93, 31130), (99, 31184), (104, 31226),

Gene: Helpful_36 Start: 30270, Stop: 31253, Start Num: 19

Candidate Starts for Helpful_36:

(1, 30003), (2, 30060), (Start: 19 @30270 has 77 MA's), (Start: 25 @30321 has 4 MA's), (26, 30339), (29, 30354), (40, 30447), (44, 30489), (64, 30657), (68, 30717), (78, 30828), (80, 30837), (81, 30849), (82, 30858), (83, 30879), (85, 30888), (93, 30960), (99, 31014), (104, 31056), (118, 31206),

Gene: HuhtaEnerson15_7 Start: 4441, Stop: 5358, Start Num: 19

Candidate Starts for HuhtaEnerson15_7:

(Start: 19 @4441 has 77 MA's), (Start: 25 @4492 has 4 MA's), (27, 4513), (30, 4534), (39, 4606), (42, 4621), (43, 4630), (44, 4657), (49, 4732), (53, 4762), (64, 4825), (76, 4954), (82, 5011), (92, 5107), (103, 5200), (110, 5248), (116, 5311), (118, 5344), (119, 5347),

Gene: Itos_27 Start: 25353, Stop: 26303, Start Num: 19

Candidate Starts for Itos_27:

(Start: 19 @25353 has 77 MA's), (Start: 25 @25404 has 4 MA's), (29, 25437), (40, 25533), (44, 25587), (48, 25653), (64, 25764), (69, 25824), (75, 25887), (80, 25938), (88, 26019), (96, 26091), (97, 26094), (102, 26130), (113, 26190),

Gene: Jabiru_7 Start: 4242, Stop: 5183, Start Num: 13

Candidate Starts for Jabiru_7:

(Start: 13 @4242 has 4 MA's), (Start: 19 @4266 has 77 MA's), (21, 4281), (Start: 25 @4317 has 4 MA's), (28, 4344), (30, 4359), (38, 4413), (41, 4443), (43, 4455), (49, 4557), (51, 4569), (64, 4650), (67, 4701), (72, 4740), (76, 4776), (81, 4824), (92, 4932), (103, 5025), (110, 5073), (114, 5106), (118, 5169),

Gene: JacoRen57_25 Start: 24411, Stop: 25172, Start Num: 19

Candidate Starts for JacoRen57_25:

(Start: 19 @24411 has 77 MA's), (Start: 25 @24462 has 4 MA's), (31, 24510), (34, 24522), (37, 24558), (44, 24633), (48, 24699), (58, 24762), (63, 24798), (64, 24807), (65, 24819), (71, 24906), (75, 24942), (81, 25002), (93, 25110), (98, 25161),

Gene: Jovo_7 Start: 4604, Stop: 5467, Start Num: 25

Candidate Starts for Jovo_7:

(9, 4469), (Start: 19 @4553 has 77 MA's), (Start: 25 @4604 has 4 MA's), (27, 4625), (30, 4646), (42, 4733), (43, 4742), (49, 4844), (64, 4937), (76, 5063), (82, 5120), (89, 5186), (103, 5309), (106, 5327), (110, 5357), (115, 5399), (118, 5453),

Gene: Kahlid_27 Start: 25358, Stop: 26308, Start Num: 19

Candidate Starts for Kahlid_27:

(Start: 19 @25358 has 77 MA's), (Start: 25 @25409 has 4 MA's), (29, 25442), (38, 25508), (40, 25538), (44, 25592), (48, 25658), (64, 25769), (69, 25829), (75, 25892), (80, 25943), (88, 26024), (95, 26087), (96, 26096), (97, 26099), (102, 26135), (113, 26195),

Gene: KandZ_35 Start: 30370, Stop: 31353, Start Num: 19

Candidate Starts for KandZ_35:

(1, 30103), (2, 30160), (Start: 19 @30370 has 77 MA's), (Start: 25 @30421 has 4 MA's), (26, 30439), (29, 30454), (40, 30547), (44, 30589), (64, 30757), (68, 30817), (78, 30928), (80, 30937), (81, 30949), (82, 30958), (83, 30979), (85, 30988), (93, 31060), (99, 31114), (104, 31156), (118, 31306),

Gene: Konstantine_39 Start: 32607, Stop: 33572, Start Num: 17

Candidate Starts for Konstantine_39:

(Start: 17 @32607 has 9 MA's), (Start: 25 @32658 has 4 MA's), (26, 32676), (37, 32754), (40, 32784), (44, 32826), (46, 32877), (54, 32934), (59, 32958), (64, 32997), (68, 33057), (78, 33174), (80, 33183), (81, 33195), (83, 33225), (87, 33258), (93, 33306), (107, 33411), (108, 33432), (111, 33444),

Gene: Lev2_7 Start: 4261, Stop: 5175, Start Num: 19

Candidate Starts for Lev2_7:

(Start: 19 @4261 has 77 MA's), (Start: 25 @4312 has 4 MA's), (27, 4333), (30, 4354), (39, 4426), (49, 4552), (64, 4645), (76, 4771), (82, 4828), (89, 4894), (92, 4924), (103, 5017), (110, 5065), (115, 5107), (118, 5161),

Gene: Lewan_27 Start: 25404, Stop: 26303, Start Num: 25

Candidate Starts for Lewan_27:

(Start: 19 @25353 has 77 MA's), (Start: 25 @25404 has 4 MA's), (29, 25437), (38, 25503), (40, 25533), (44, 25587), (48, 25653), (64, 25764), (69, 25824), (75, 25887), (80, 25938), (88, 26019), (96, 26091), (97, 26094), (102, 26130), (113, 26190),

Gene: LilDestine_27 Start: 25352, Stop: 26302, Start Num: 19

Candidate Starts for LilDestine_27:

(Start: 19 @25352 has 77 MA's), (Start: 25 @25403 has 4 MA's), (29, 25436), (38, 25502), (40, 25532), (44, 25586), (48, 25652), (64, 25763), (69, 25823), (75, 25886), (80, 25937), (88, 26018), (96, 26090), (97, 26093), (102, 26129), (113, 26189),

Gene: LittleCherry_7 Start: 4442, Stop: 5359, Start Num: 19

Candidate Starts for LittleCherry_7:

(Start: 19 @4442 has 77 MA's), (Start: 25 @4493 has 4 MA's), (27, 4514), (30, 4535), (39, 4607), (42, 4622), (43, 4631), (44, 4658), (49, 4733), (53, 4763), (64, 4826), (76, 4955), (82, 5012), (92, 5108), (103, 5201), (110, 5249), (116, 5312), (118, 5345), (119, 5348),

Gene: Loadrie_27 Start: 25385, Stop: 26335, Start Num: 19

Candidate Starts for Loadrie_27:

(Start: 19 @25385 has 77 MA's), (Start: 25 @25436 has 4 MA's), (29, 25469), (38, 25535), (40, 25565), (44, 25619), (48, 25685), (64, 25796), (69, 25856), (75, 25919), (80, 25970), (88, 26051), (96, 26123), (97, 26126), (102, 26162), (113, 26222),

Gene: LongHai_28 Start: 23441, Stop: 24388, Start Num: 18

Candidate Starts for LongHai_28:

(Start: 18 @23441 has 2 MA's), (Start: 25 @23492 has 4 MA's), (35, 23573), (40, 23618), (44, 23660), (52, 23759), (64, 23831), (74, 23945), (76, 23963), (78, 23990), (81, 24011), (83, 24041), (93, 24122), (96, 24158), (105, 24221), (107, 24233), (108, 24254), (119, 24356),

Gene: Lynnae_27 Start: 25341, Stop: 26291, Start Num: 19

Candidate Starts for Lynnae_27:

(Start: 19 @25341 has 77 MA's), (Start: 25 @25392 has 4 MA's), (29, 25425), (38, 25491), (40, 25521), (44, 25575), (48, 25641), (64, 25752), (69, 25812), (75, 25875), (80, 25926), (88, 26007), (96, 26079), (97, 26082), (102, 26118), (113, 26178),

Gene: Maco6_25 Start: 22400, Stop: 23347, Start Num: 18

Candidate Starts for Maco6_25:

(Start: 18 @22400 has 2 MA's), (Start: 25 @22451 has 4 MA's), (35, 22532), (40, 22577), (44, 22619), (52, 22718), (64, 22790), (68, 22850), (74, 22904), (76, 22922), (78, 22949), (81, 22970), (83, 23000), (93, 23081), (96, 23117), (108, 23213),

Gene: MarysWell_6 Start: 4460, Stop: 5326, Start Num: 25

Candidate Starts for MarysWell_6:

(9, 4325), (Start: 19 @4409 has 77 MA's), (Start: 25 @4460 has 4 MA's), (27, 4481), (30, 4502), (42, 4589), (43, 4598), (49, 4700), (53, 4730), (64, 4793), (76, 4922), (82, 4979), (92, 5075), (103, 5168), (110, 5216), (116, 5279), (118, 5312), (119, 5315),

Gene: Megatron06_36 Start: 31939, Stop: 32904, Start Num: 17

Candidate Starts for Megatron06_36:

(Start: 17 @31939 has 9 MA's), (Start: 25 @31990 has 4 MA's), (26, 32008), (37, 32086), (40, 32116), (44, 32158), (46, 32209), (54, 32266), (59, 32290), (64, 32329), (68, 32389), (78, 32506), (80, 32515), (81, 32527), (83, 32557), (87, 32590), (93, 32638), (107, 32743), (108, 32764), (111, 32776),

Gene: Micasa_7 Start: 4410, Stop: 5327, Start Num: 19

Candidate Starts for Micasa_7:

(Start: 19 @4410 has 77 MA's), (Start: 25 @4461 has 4 MA's), (27, 4482), (30, 4503), (39, 4575), (42, 4590), (43, 4599), (44, 4626), (49, 4701), (53, 4731), (64, 4794), (76, 4923), (82, 4980), (92, 5076), (103, 5169), (110, 5217), (116, 5280), (118, 5313), (119, 5316),

Gene: Midas2_7 Start: 4409, Stop: 5326, Start Num: 19

Candidate Starts for Midas2_7:

(Start: 19 @4409 has 77 MA's), (Start: 25 @4460 has 4 MA's), (27, 4481), (30, 4502), (39, 4574), (42, 4589), (43, 4598), (44, 4625), (49, 4700), (53, 4730), (64, 4793), (76, 4922), (82, 4979), (92, 5075), (103, 5168), (110, 5216), (116, 5279), (118, 5312), (119, 5315),

Gene: Milcery_7 Start: 4446, Stop: 5363, Start Num: 19

Candidate Starts for Milcery_7:

(Start: 19 @4446 has 77 MA's), (Start: 25 @4497 has 4 MA's), (27, 4518), (30, 4539), (39, 4611), (42, 4626), (43, 4635), (44, 4662), (49, 4737), (64, 4830), (76, 4959), (82, 5016), (92, 5112), (103, 5205), (110, 5253), (116, 5316), (118, 5349), (119, 5352),

Gene: Miley16_27 Start: 25353, Stop: 26303, Start Num: 19

Candidate Starts for Miley16_27:

(Start: 19 @25353 has 77 MA's), (Start: 25 @25404 has 4 MA's), (29, 25437), (40, 25533), (44, 25587), (48, 25653), (64, 25764), (69, 25824), (75, 25887), (80, 25938), (88, 26019), (96, 26091), (97, 26094), (102, 26130), (113, 26190),

Gene: MkaliMitinis3_27 Start: 25353, Stop: 26303, Start Num: 19

Candidate Starts for MkaliMitinis3_27:

(Start: 19 @25353 has 77 MA's), (Start: 25 @25404 has 4 MA's), (29, 25437), (38, 25503), (40, 25533), (44, 25587), (48, 25653), (64, 25764), (69, 25824), (75, 25887), (80, 25938), (88, 26019), (96, 26091),

(97, 26094), (102, 26130), (113, 26190),

Gene: Mopey_35 Start: 30270, Stop: 31253, Start Num: 19

Candidate Starts for Mopey_35:

(1, 30003), (2, 30060), (Start: 19 @30270 has 77 MA's), (Start: 25 @30321 has 4 MA's), (26, 30339), (29, 30354), (40, 30447), (44, 30489), (64, 30657), (68, 30717), (78, 30828), (80, 30837), (81, 30849), (82, 30858), (83, 30879), (85, 30888), (93, 30960), (99, 31014), (104, 31056), (118, 31206),

Gene: Muddy_27 Start: 23347, Stop: 24294, Start Num: 18

Candidate Starts for Muddy_27:

(Start: 18 @23347 has 2 MA's), (Start: 25 @23398 has 4 MA's), (40, 23524), (44, 23566), (52, 23665), (64, 23737), (74, 23851), (76, 23869), (78, 23896), (81, 23917), (83, 23947), (93, 24028), (96, 24064), (105, 24127), (108, 24160), (119, 24262),

Gene: Nazo_26 Start: 23758, Stop: 24705, Start Num: 19

Candidate Starts for Nazo_26:

(Start: 19 @23758 has 77 MA's), (Start: 25 @23809 has 4 MA's), (29, 23842), (33, 23863), (34, 23869), (35, 23890), (40, 23935), (44, 23977), (54, 24085), (64, 24148), (78, 24322), (80, 24331), (81, 24343), (83, 24373), (87, 24406), (103, 24544), (104, 24550), (110, 24595), (118, 24691), (119, 24694), (120, 24697),

Gene: Netyap_27 Start: 25353, Stop: 26303, Start Num: 19

Candidate Starts for Netyap_27:

(Start: 19 @25353 has 77 MA's), (Start: 25 @25404 has 4 MA's), (29, 25437), (40, 25533), (44, 25587), (48, 25653), (64, 25764), (69, 25824), (75, 25887), (80, 25938), (88, 26019), (96, 26091), (97, 26094), (102, 26130), (113, 26190),

Gene: Nicholasp3_27 Start: 25355, Stop: 26305, Start Num: 19

Candidate Starts for Nicholasp3_27:

(Start: 19 @25355 has 77 MA's), (Start: 25 @25406 has 4 MA's), (29, 25439), (38, 25505), (40, 25535), (44, 25589), (48, 25655), (64, 25766), (69, 25826), (75, 25889), (80, 25940), (88, 26021), (96, 26093), (97, 26096), (102, 26132), (113, 26192),

Gene: Nova_35 Start: 30697, Stop: 31680, Start Num: 19

Candidate Starts for Nova_35:

(1, 30430), (2, 30487), (Start: 19 @30697 has 77 MA's), (Start: 25 @30748 has 4 MA's), (26, 30766), (29, 30781), (40, 30874), (44, 30916), (64, 31084), (68, 31144), (78, 31255), (80, 31264), (81, 31276), (82, 31285), (83, 31306), (85, 31315), (93, 31387), (99, 31441), (104, 31483), (118, 31633),

Gene: Oaker_34 Start: 31663, Stop: 32628, Start Num: 17

Candidate Starts for Oaker_34:

(Start: 17 @31663 has 9 MA's), (Start: 25 @31714 has 4 MA's), (26, 31732), (37, 31810), (40, 31840), (44, 31882), (46, 31933), (54, 31990), (59, 32014), (64, 32053), (68, 32113), (78, 32230), (80, 32239), (81, 32251), (83, 32281), (87, 32314), (93, 32362), (107, 32467), (108, 32488), (111, 32500),

Gene: OverPar_28 Start: 25436, Stop: 26335, Start Num: 25

Candidate Starts for OverPar_28:

(Start: 19 @25385 has 77 MA's), (Start: 25 @25436 has 4 MA's), (29, 25469), (38, 25535), (40, 25565), (44, 25619), (48, 25685), (64, 25796), (69, 25856), (75, 25919), (80, 25970), (88, 26051), (96, 26123), (97, 26126), (102, 26162), (113, 26222),

Gene: PBI1_35 Start: 30201, Stop: 31184, Start Num: 19

Candidate Starts for PBI1_35:

(1, 29934), (2, 29991), (Start: 19 @30201 has 77 MA's), (Start: 25 @30252 has 4 MA's), (26, 30270), (29, 30285), (40, 30378), (44, 30420), (64, 30588), (68, 30648), (78, 30759), (80, 30768), (81, 30780), (82, 30789), (83, 30810), (85, 30819), (93, 30891), (99, 30945), (104, 30987), (118, 31137),

Gene: PLOT_36 Start: 30273, Stop: 31256, Start Num: 19

Candidate Starts for PLOT_36:

(1, 30006), (2, 30063), (Start: 19 @30273 has 77 MA's), (Start: 25 @30324 has 4 MA's), (26, 30342), (29, 30357), (40, 30450), (44, 30492), (64, 30660), (68, 30720), (78, 30831), (80, 30840), (81, 30852), (82, 30861), (83, 30882), (85, 30891), (93, 30963), (99, 31017), (104, 31059), (118, 31209),

Gene: Penelope2018_35 Start: 30270, Stop: 31253, Start Num: 19

Candidate Starts for Penelope2018_35:

(1, 30003), (2, 30060), (Start: 19 @30270 has 77 MA's), (Start: 25 @30321 has 4 MA's), (26, 30339), (29, 30354), (40, 30447), (44, 30489), (64, 30657), (68, 30717), (78, 30828), (80, 30837), (81, 30849), (82, 30858), (83, 30879), (85, 30888), (93, 30960), (99, 31014), (104, 31056), (118, 31206),

Gene: Phalaborwa_35 Start: 30297, Stop: 31280, Start Num: 19

Candidate Starts for Phalaborwa_35:

(1, 30027), (2, 30084), (Start: 19 @30297 has 77 MA's), (Start: 25 @30348 has 4 MA's), (26, 30366), (40, 30474), (44, 30516), (64, 30684), (68, 30744), (78, 30855), (80, 30864), (81, 30876), (82, 30885), (83, 30906), (93, 30987), (99, 31041), (100, 31053), (104, 31083), (118, 31233),

Gene: Phayonce_26 Start: 23684, Stop: 24628, Start Num: 24

Candidate Starts for Phayonce_26:

(16, 23645), (20, 23663), (Start: 24 @23684 has 2 MA's), (29, 23738), (32, 23756), (36, 23792), (45, 23921), (47, 23948), (58, 24023), (64, 24065), (65, 24077), (88, 24338), (94, 24383), (99, 24428), (108, 24497),

Gene: Phlorence_7 Start: 4552, Stop: 5466, Start Num: 19

Candidate Starts for Phlorence_7:

(9, 4468), (Start: 19 @4552 has 77 MA's), (Start: 25 @4603 has 4 MA's), (27, 4624), (30, 4645), (39, 4717), (49, 4843), (64, 4936), (76, 5062), (82, 5119), (89, 5185), (92, 5215), (103, 5308), (110, 5356), (115, 5398), (118, 5452),

Gene: Phreeze_34 Start: 31406, Stop: 32371, Start Num: 17

Candidate Starts for Phreeze_34:

(Start: 17 @31406 has 9 MA's), (Start: 25 @31457 has 4 MA's), (26, 31475), (37, 31553), (40, 31583), (44, 31625), (46, 31676), (54, 31733), (59, 31757), (64, 31796), (65, 31808), (68, 31856), (78, 31973), (80, 31982), (81, 31994), (83, 32024), (87, 32057), (93, 32105), (107, 32210), (108, 32231), (111, 32243),

Gene: PickleBack_7 Start: 4262, Stop: 5176, Start Num: 19

Candidate Starts for PickleBack_7:

(Start: 19 @4262 has 77 MA's), (Start: 25 @4313 has 4 MA's), (27, 4334), (30, 4355), (39, 4427), (49, 4553), (64, 4646), (76, 4772), (82, 4829), (89, 4895), (92, 4925), (103, 5018), (110, 5066), (115, 5108), (118, 5162),

Gene: Prager_35 Start: 30282, Stop: 31265, Start Num: 19

Candidate Starts for Prager_35:

(1, 30015), (2, 30072), (Start: 19 @30282 has 77 MA's), (Start: 25 @30333 has 4 MA's), (26, 30351), (29, 30366), (40, 30459), (44, 30501), (64, 30669), (68, 30729), (78, 30840), (80, 30849), (81, 30861), (82, 30870), (83, 30891), (85, 30900), (93, 30972), (99, 31026), (104, 31068), (118, 31218),

Gene: Predator_36 Start: 30631, Stop: 31587, Start Num: 17

Candidate Starts for Predator_36:

(Start: 17 @30631 has 9 MA's), (Start: 25 @30682 has 4 MA's), (37, 30778), (40, 30808), (42, 30814), (44, 30850), (51, 30937), (64, 31021), (65, 31033), (76, 31159), (78, 31186), (81, 31207), (83, 31237), (84, 31243), (87, 31270), (93, 31318), (99, 31372), (108, 31447),

Gene: Prin Ashe11_8 Start: 4460, Stop: 5326, Start Num: 25

Candidate Starts for Prin Ashe11_8:

(Start: 19 @4409 has 77 MA's), (Start: 25 @4460 has 4 MA's), (27, 4481), (30, 4502), (39, 4574), (42, 4589), (43, 4598), (44, 4625), (49, 4700), (53, 4730), (64, 4793), (76, 4922), (82, 4979), (92, 5075), (103, 5168), (110, 5216), (116, 5279), (118, 5312), (119, 5315),

Gene: Puissant_33 Start: 31945, Stop: 32859, Start Num: 25

Candidate Starts for Puissant_33:

(Start: 17 @31894 has 9 MA's), (Start: 25 @31945 has 4 MA's), (33, 31999), (40, 32071), (44, 32113), (46, 32164), (54, 32221), (59, 32245), (64, 32284), (65, 32296), (68, 32344), (73, 32395), (77, 32434), (78, 32461), (80, 32470), (81, 32482), (83, 32512), (87, 32545), (108, 32719), (109, 32722), (111, 32731),

Gene: RRH1_05 Start: 3586, Stop: 4320, Start Num: 50

Candidate Starts for RRH1_05:

(8, 3157), (22, 3295), (41, 3457), (50, 3586), (57, 3637), (60, 3658), (61, 3664), (62, 3670), (66, 3736), (70, 3778), (79, 3880), (85, 3937), (88, 3973), (105, 4111), (112, 4171), (117, 4231), (121, 4300),

Gene: Salvus_28 Start: 23441, Stop: 24388, Start Num: 18

Candidate Starts for Salvus_28:

(Start: 18 @23441 has 2 MA's), (Start: 25 @23492 has 4 MA's), (35, 23573), (40, 23618), (44, 23660), (52, 23759), (64, 23831), (74, 23945), (76, 23963), (78, 23990), (81, 24011), (83, 24041), (93, 24122), (96, 24158), (105, 24221), (107, 24233), (108, 24254), (119, 24356),

Gene: Sarshaun_27 Start: 25437, Stop: 26336, Start Num: 25

Candidate Starts for Sarshaun_27:

(Start: 19 @25386 has 77 MA's), (Start: 25 @25437 has 4 MA's), (29, 25470), (38, 25536), (40, 25566), (44, 25620), (48, 25686), (64, 25797), (69, 25857), (75, 25920), (80, 25971), (88, 26052), (96, 26124), (97, 26127), (102, 26163), (113, 26223),

Gene: SirHarley_34 Start: 30202, Stop: 31185, Start Num: 19

Candidate Starts for SirHarley_34:

(1, 29935), (2, 29992), (Start: 19 @30202 has 77 MA's), (Start: 25 @30253 has 4 MA's), (26, 30271), (29, 30286), (40, 30379), (44, 30421), (64, 30589), (68, 30649), (78, 30760), (80, 30769), (81, 30781), (82, 30790), (83, 30811), (85, 30820), (93, 30892), (99, 30946), (104, 30988), (118, 31138),

Gene: Soap141_27 Start: 25437, Stop: 26336, Start Num: 25

Candidate Starts for Soap141_27:

(Start: 19 @25386 has 77 MA's), (Start: 25 @25437 has 4 MA's), (29, 25470), (38, 25536), (40, 25566), (44, 25620), (48, 25686), (64, 25797), (69, 25857), (75, 25920), (80, 25971), (88, 26052), (96, 26124), (97, 26127), (102, 26163), (113, 26223),

Gene: Sparky_26 Start: 24326, Stop: 25279, Start Num: 23

Candidate Starts for Sparky_26:

(10, 24212), (20, 24308), (Start: 23 @24326 has 4 MA's), (32, 24401), (36, 24437), (45, 24566), (47, 24593), (58, 24668), (64, 24710), (65, 24722), (81, 24914), (90, 24989), (99, 25073), (108, 25142),

Gene: Stuck_29 Start: 23621, Stop: 24574, Start Num: 23

Candidate Starts for Stuck_29:

(15, 23585), (Start: 23 @23621 has 4 MA's), (32, 23696), (36, 23732), (45, 23861), (47, 23888), (56, 23948), (58, 23963), (64, 24005), (65, 24017), (81, 24209), (90, 24284), (99, 24368), (108, 24437),

Gene: SuperheroCarly_35 Start: 30132, Stop: 31115, Start Num: 19

Candidate Starts for SuperheroCarly_35:

(1, 29865), (2, 29922), (Start: 19 @30132 has 77 MA's), (Start: 25 @30183 has 4 MA's), (26, 30201), (29, 30216), (40, 30309), (44, 30351), (64, 30519), (68, 30579), (78, 30690), (80, 30699), (81, 30711), (82, 30720), (83, 30741), (85, 30750), (93, 30822), (99, 30876), (104, 30918), (118, 31068),

Gene: Swirley_7 Start: 4411, Stop: 5328, Start Num: 19

Candidate Starts for Swirley_7:

(9, 4324), (Start: 19 @4411 has 77 MA's), (Start: 25 @4462 has 4 MA's), (27, 4483), (30, 4504), (39, 4576), (42, 4591), (43, 4600), (44, 4627), (49, 4702), (53, 4732), (64, 4795), (76, 4924), (82, 4981), (92, 5077), (103, 5170), (110, 5218), (116, 5281), (118, 5314), (119, 5317),

Gene: SydNat_7 Start: 4521, Stop: 5435, Start Num: 19

Candidate Starts for SydNat_7:

(9, 4437), (Start: 19 @4521 has 77 MA's), (Start: 25 @4572 has 4 MA's), (27, 4593), (30, 4614), (42, 4701), (43, 4710), (49, 4812), (64, 4905), (76, 5031), (82, 5088), (89, 5154), (103, 5277), (106, 5295), (110, 5325), (115, 5367), (118, 5421),

Gene: Tarynearal_6 Start: 4438, Stop: 5355, Start Num: 19

Candidate Starts for Tarynearal_6:

(Start: 19 @4438 has 77 MA's), (Start: 25 @4489 has 4 MA's), (27, 4510), (30, 4531), (39, 4603), (44, 4654), (49, 4729), (53, 4759), (64, 4822), (76, 4951), (82, 5008), (92, 5104), (103, 5197), (110, 5245), (116, 5308), (118, 5341), (119, 5344),

Gene: Theia_6 Start: 4377, Stop: 5294, Start Num: 19

Candidate Starts for Theia_6:

(Start: 19 @4377 has 77 MA's), (Start: 25 @4428 has 4 MA's), (27, 4449), (30, 4470), (42, 4557), (43, 4566), (49, 4668), (53, 4698), (55, 4704), (64, 4761), (76, 4890), (82, 4947), (92, 5043), (103, 5136), (110, 5184), (116, 5247), (118, 5280), (119, 5283),

Gene: Thoth_35 Start: 30267, Stop: 31250, Start Num: 19

Candidate Starts for Thoth_35:

(1, 30000), (2, 30057), (Start: 19 @30267 has 77 MA's), (Start: 25 @30318 has 4 MA's), (26, 30336), (29, 30351), (40, 30444), (44, 30486), (64, 30654), (68, 30714), (78, 30825), (80, 30834), (81, 30846), (82, 30855), (83, 30876), (85, 30885), (93, 30957), (99, 31011), (104, 31053), (118, 31203),

Gene: ThulaThula_26 Start: 23690, Stop: 24634, Start Num: 24

Candidate Starts for ThulaThula_26:

(11, 23570), (12, 23573), (20, 23669), (Start: 24 @23690 has 2 MA's), (29, 23744), (32, 23762), (36, 23798), (45, 23927), (47, 23954), (59, 24032), (64, 24071), (65, 24083), (80, 24263), (88, 24344), (89, 24347), (94, 24389), (99, 24434), (108, 24503), (111, 24515),

Gene: Thumb_34 Start: 31403, Stop: 32368, Start Num: 17

Candidate Starts for Thumb_34:

(Start: 17 @31403 has 9 MA's), (Start: 25 @31454 has 4 MA's), (26, 31472), (40, 31580), (44, 31622), (46, 31673), (54, 31730), (59, 31754), (64, 31793), (68, 31853), (78, 31970), (80, 31979), (81, 31991), (83, 32021), (87, 32054), (93, 32102), (107, 32207), (108, 32228), (111, 32240),

Gene: Tiger_7 Start: 4261, Stop: 5175, Start Num: 19

Candidate Starts for Tiger_7:

(Start: 19 @4261 has 77 MA's), (Start: 25 @4312 has 4 MA's), (27, 4333), (30, 4354), (39, 4426), (49, 4552), (64, 4645), (76, 4771), (82, 4828), (89, 4894), (92, 4924), (103, 5017), (110, 5065), (115, 5107), (118, 5161),

Gene: Tourach_27 Start: 25350, Stop: 26300, Start Num: 19

Candidate Starts for Tourach_27:

(Start: 19 @25350 has 77 MA's), (Start: 25 @25401 has 4 MA's), (29, 25434), (32, 25452), (38, 25500), (40, 25530), (44, 25584), (48, 25650), (64, 25761), (69, 25821), (75, 25884), (80, 25935), (88, 26016), (95, 26079), (96, 26088), (97, 26091), (101, 26121), (102, 26127), (113, 26187),

Gene: Troll4_35 Start: 30271, Stop: 31254, Start Num: 19

Candidate Starts for Troll4_35:

(1, 30004), (2, 30061), (Start: 19 @30271 has 77 MA's), (Start: 25 @30322 has 4 MA's), (26, 30340), (29, 30355), (40, 30448), (44, 30490), (64, 30658), (68, 30718), (78, 30829), (80, 30838), (81, 30850), (82, 30859), (83, 30880), (85, 30889), (93, 30961), (99, 31015), (104, 31057), (118, 31207),

Gene: Twigg_7 Start: 4410, Stop: 5327, Start Num: 19

Candidate Starts for Twigg_7:

(Start: 19 @4410 has 77 MA's), (Start: 25 @4461 has 4 MA's), (27, 4482), (30, 4503), (39, 4575), (42, 4590), (43, 4599), (44, 4626), (49, 4701), (53, 4731), (64, 4794), (76, 4923), (82, 4980), (92, 5076), (103, 5169), (110, 5217), (116, 5280), (118, 5313), (119, 5316),

Gene: Underpass_27 Start: 25355, Stop: 26305, Start Num: 19

Candidate Starts for Underpass_27:

(Start: 19 @25355 has 77 MA's), (Start: 25 @25406 has 4 MA's), (29, 25439), (38, 25505), (40, 25535), (44, 25589), (48, 25655), (64, 25766), (69, 25826), (75, 25889), (80, 25940), (88, 26021), (96, 26093), (97, 26096), (102, 26132), (113, 26192),

Gene: Vetric_27 Start: 25359, Stop: 26309, Start Num: 19

Candidate Starts for Vetric_27:

(Start: 19 @25359 has 77 MA's), (Start: 25 @25410 has 4 MA's), (29, 25443), (38, 25509), (40, 25539), (44, 25593), (48, 25659), (64, 25770), (69, 25830), (75, 25893), (80, 25944), (88, 26025), (96, 26097), (97, 26100), (102, 26136), (113, 26196),

Gene: Visconti_35 Start: 30280, Stop: 31263, Start Num: 19

Candidate Starts for Visconti_35:

(1, 30013), (2, 30070), (Start: 19 @30280 has 77 MA's), (Start: 25 @30331 has 4 MA's), (26, 30349), (29, 30364), (40, 30457), (44, 30499), (64, 30667), (68, 30727), (78, 30838), (80, 30847), (81, 30859), (82, 30868), (83, 30889), (85, 30898), (93, 30970), (99, 31024), (104, 31066), (118, 31216),

Gene: WaldoWhy_36 Start: 30276, Stop: 31259, Start Num: 19

Candidate Starts for WaldoWhy_36:

(1, 30009), (2, 30066), (Start: 19 @30276 has 77 MA's), (Start: 25 @30327 has 4 MA's), (26, 30345), (29, 30360), (40, 30453), (44, 30495), (64, 30663), (68, 30723), (78, 30834), (80, 30843), (81, 30855), (82, 30864), (83, 30885), (85, 30894), (93, 30966), (99, 31020), (104, 31062), (118, 31212),

Gene: Wigglewigg_27 Start: 25385, Stop: 26335, Start Num: 19

Candidate Starts for Wigglewigg_27:

(Start: 19 @25385 has 77 MA's), (Start: 25 @25436 has 4 MA's), (29, 25469), (38, 25535), (40, 25565), (44, 25619), (48, 25685), (64, 25796), (69, 25856), (75, 25919), (80, 25970), (88, 26051), (96, 26123), (97, 26126), (102, 26162), (113, 26222),

Gene: Wilder_27 Start: 25358, Stop: 26308, Start Num: 19

Candidate Starts for Wilder_27:

(Start: 19 @25358 has 77 MA's), (Start: 25 @25409 has 4 MA's), (29, 25442), (38, 25508), (40, 25538), (44, 25592), (48, 25658), (64, 25769), (69, 25829), (75, 25892), (80, 25943), (88, 26024), (95, 26087), (96, 26096), (97, 26099), (102, 26135), (113, 26195),

Gene: Winky_27 Start: 25353, Stop: 26303, Start Num: 19

Candidate Starts for Winky_27:

(Start: 19 @25353 has 77 MA's), (Start: 25 @25404 has 4 MA's), (29, 25437), (40, 25533), (44, 25587), (48, 25653), (64, 25764), (69, 25824), (75, 25887), (80, 25938), (88, 26019), (96, 26091), (97, 26094), (102, 26130), (113, 26190),

Gene: ZhongYanYuan_26 Start: 25225, Stop: 26124, Start Num: 25

Candidate Starts for ZhongYanYuan_26:

(Start: 19 @25174 has 77 MA's), (Start: 25 @25225 has 4 MA's), (29, 25258), (32, 25276), (38, 25324), (44, 25408), (48, 25474), (64, 25585), (69, 25645), (75, 25708), (80, 25759), (88, 25840), (92, 25873), (96, 25912), (97, 25915), (102, 25951), (113, 26011),

Gene: Zolita_6 Start: 4522, Stop: 5436, Start Num: 19

Candidate Starts for Zolita_6:

(9, 4438), (Start: 19 @4522 has 77 MA's), (Start: 25 @4573 has 4 MA's), (27, 4594), (30, 4615), (42, 4702), (43, 4711), (49, 4813), (64, 4906), (76, 5032), (82, 5089), (89, 5155), (103, 5278), (106, 5296), (110, 5326), (115, 5368), (118, 5422),