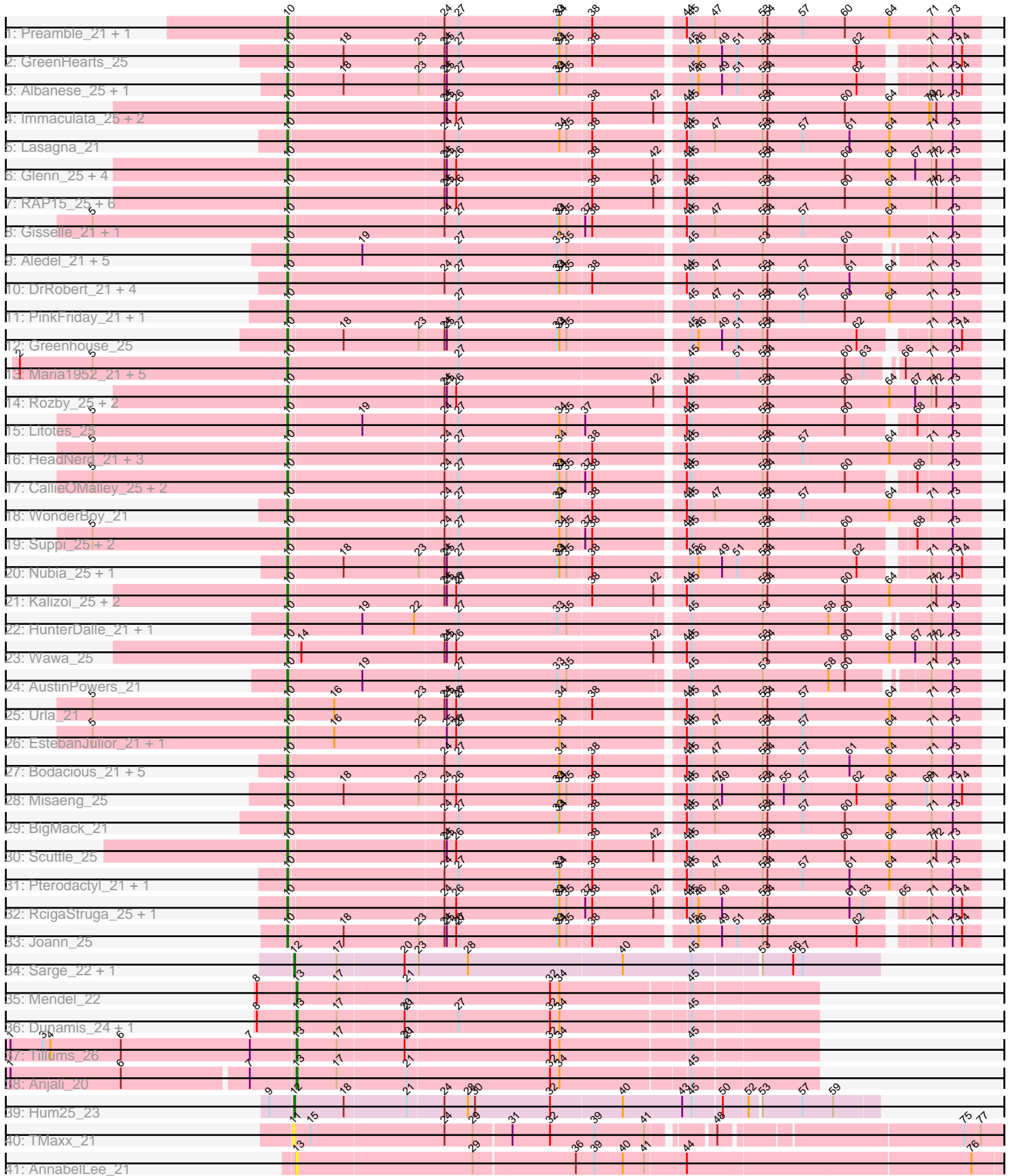


# Pham 193910



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 193910 Report

This analysis was run 11/02/24 on database version 579.

Pham number 193910 has 94 members, 4 are drafts.

Phages represented in each track:

- Track 1 : Preamble\_21, Kittykat\_21
- Track 2 : GreenHearts\_25
- Track 3 : Albanese\_25, Lakshmi\_25
- Track 4 : Immaculata\_25, Cholula\_25, Potatoes\_25
- Track 5 : Lasagna\_21
- Track 6 : Glenn\_25, TattModd\_25, Carpal\_25, Fluke\_25, Vallejo\_25
- Track 7 : RAP15\_25, Korra\_26, MeganNoll\_25, Savage2526\_25, MrGloopy\_25, Jumboset\_25, BrotherBLo\_25
- Track 8 : Gisselle\_21, DreamTeam\_21
- Track 9 : Aledel\_21, Supakev\_21, Riovina\_21, Eunoia\_21, OMalley\_21, Chridison\_21
- Track 10 : DrRobert\_21, Lucy\_21, Christian\_21, PitaDog\_21, OurGirlNessie\_21
- Track 11 : PinkFriday\_21, Pumancara\_21
- Track 12 : Greenhouse\_25
- Track 13 : Maria1952\_21, Daiboju\_21, Temper16\_21, KingBob\_21, Herb\_21, Sergei\_21
- Track 14 : Rozby\_25, Riverdale\_25, Beethoven\_25
- Track 15 : Litotes\_25
- Track 16 : HeadNerd\_21, Moki\_21, Bennie\_21, Huckleberry\_21
- Track 17 : CallieOMalley\_25, PartyCup\_25, Wayne\_25
- Track 18 : WonderBoy\_21
- Track 19 : Suppi\_25, AppleCider\_25, Canowicakte\_25
- Track 20 : Nubia\_25, Oxynfrius\_25
- Track 21 : Kalizoi\_25, Dino\_25, Zorro\_25
- Track 22 : HunterDalle\_21, Vulture\_21
- Track 23 : Wawa\_25
- Track 24 : AustinPowers\_21
- Track 25 : Urla\_21
- Track 26 : EstebanJulior\_21, MamaPearl\_21
- Track 27 : Bodacious\_21, Nancia\_21, CristinaYang\_21, LilStuart\_21, Lennox\_21, ChewChew\_21
- Track 28 : Misaeng\_25
- Track 29 : BigMack\_21
- Track 30 : Scuttle\_25
- Track 31 : Pterodactyl\_21, Makoto\_21
- Track 32 : RcigaStruga\_25, Huntingdon\_25
- Track 33 : Joann\_25

- Track 34 : Sarge\_22, BrayBeast\_22
- Track 35 : Mendel\_22
- Track 36 : Dunamis\_24, Swim\_25
- Track 37 : Tillums\_26
- Track 38 : Anjali\_20
- Track 39 : Hum25\_23
- Track 40 : TMaxx\_21
- Track 41 : AnnabelLee\_21

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

The start number called the most often in the published annotations is 10, it was called in 83 of the 90 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Albanese\_25, Aledel\_21, AppleCider\_25, AustinPowers\_21, Beethoven\_25, Bennie\_21, BigMack\_21, Bodacious\_21, BrotherBLo\_25, CallieOMalley\_25, Canowicakte\_25, Carpal\_25, ChewChew\_21, Cholula\_25, Chridison\_21, Christian\_21, CristinaYang\_21, Daiboju\_21, Dino\_25, DrRobert\_21, DreamTeam\_21, EstebanJulior\_21, Eunoia\_21, Fluke\_25, Gisselle\_21, Glenn\_25, GreenHearts\_25, Greenhouse\_25, HeadNerd\_21, Herb\_21, Huckleberry\_21, HunterDalle\_21, Huntingdon\_25, Immaculata\_25, Joann\_25, Jumboset\_25, Kalizoi\_25, KingBob\_21, Kittykat\_21, Korra\_26, Lakshmi\_25, Lasagna\_21, Lennox\_21, LilStuart\_21, Litotes\_25, Lucy\_21, Makoto\_21, MamaPearl\_21, Maria1952\_21, MeganNoll\_25, Misaeng\_25, Moki\_21, MrGloopy\_25, Nancia\_21, Nubia\_25, OMalley\_21, OurGirlNessie\_21, Oxyfrius\_25, PartyCup\_25, PinkFriday\_21, PitaDog\_21, Potatoes\_25, Preamble\_21, Pterodactyl\_21, Pumancara\_21, RAP15\_25, RcigaStruga\_25, Riovina\_21, Riverdale\_25, Rozby\_25, Savage2526\_25, Scuttle\_25, Sergei\_21, Supakev\_21, Suppi\_25, TattModd\_25, Temper16\_21, Urla\_21, Vallejo\_25, Vulture\_21, Wawa\_25, Wayne\_25, WonderBoy\_21, Zorro\_25,

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

- 

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

- Anjali\_20, AnnabelLee\_21, BrayBeast\_22, Dunamis\_24, Hum25\_23, Mendel\_22, Sarge\_22, Swim\_25, TMaxx\_21, Tillums\_26,

**Summary by start number:**

Start 10:

- Found in 84 of 94 ( 89.4% ) of genes in pham
- Manual Annotations of this start: 83 of 90
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Albanese\_25 (AK), Aledel\_21 (AK), AppleCider\_25 (AK), AustinPowers\_21 (AK), Beethoven\_25 (AK), Bennie\_21 (AK), BigMack\_21 (AK), Bodacious\_21 (AK), BrotherBLo\_25 (AK), CallieOMalley\_25 (AK), Canowicakte\_25 (AK), Carpal\_25 (AK), ChewChew\_21 (AK), Cholula\_25 (AK), Chridison\_21 (AK), Christian\_21 (AK), CristinaYang\_21 (AK), Daiboju\_21 (AK), Dino\_25 (AK), DrRobert\_21 (AK), DreamTeam\_21 (AK), EstebanJulior\_21 (AK),

Eunoia\_21 (AK), Fluke\_25 (AK), Gisselle\_21 (AK), Glenn\_25 (AK), GreenHearts\_25 (AK), Greenhouse\_25 (AK), HeadNerd\_21 (AK), Herb\_21 (AK), Huckleberry\_21 (AK), HunterDalle\_21 (AK), Huntingdon\_25 (AK), Immaculata\_25 (AK), Joann\_25 (AK), Jumboset\_25 (AK), Kalizoi\_25 (AK), KingBob\_21 (AK), Kittykat\_21 (AK), Korra\_26 (AK), Lakshmi\_25 (AK), Lasagna\_21 (AK), Lennox\_21 (AK), LilStuart\_21 (AK), Litotes\_25 (AK), Lucy\_21 (AK), Makoto\_21 (AK), MamaPearl\_21 (AK), Maria1952\_21 (AK), MeganNoll\_25 (AK), Misaeng\_25 (AK), Moki\_21 (AK), MrGloopy\_25 (AK), Nancia\_21 (AK), Nubia\_25 (AK), OMalley\_21 (AK), OurGirlNessie\_21 (AK), Oxyntrius\_25 (AK), PartyCup\_25 (AK), PinkFriday\_21 (AK), PitaDog\_21 (AK), Potatoes\_25 (AK), Preamble\_21 (AK), Pterodactyl\_21 (AK), Pumancara\_21 (AK), RAP15\_25 (AK), RcigaStruga\_25 (AK), Riovina\_21 (AK), Riverdale\_25 (AK), Rozby\_25 (AK), Savage2526\_25 (AK), Scuttle\_25 (AK), Sergei\_21 (AK), Supakev\_21 (AK), Suppi\_25 (AK), TattModd\_25 (AK), Temper16\_21 (AK), Urla\_21 (AK), Vallejo\_25 (AK), Vulture\_21 (AK), Wawa\_25 (AK), Wayne\_25 (AK), WonderBoy\_21 (AK), Zorro\_25 (AK),

Start 11:

- Found in 1 of 94 ( 1.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TMaxx\_21 (FR),

Start 12:

- Found in 3 of 94 ( 3.2% ) of genes in pham
- Manual Annotations of this start: 3 of 90
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BrayBeast\_22 (FB), Hum25\_23 (FQ), Sarge\_22 (FB),

Start 13:

- Found in 6 of 94 ( 6.4% ) of genes in pham
- Manual Annotations of this start: 4 of 90
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anjali\_20 (FD), AnnabelLee\_21 (FR), Dunamis\_24 (FD), Mendel\_22 (FD), Swim\_25 (FD), Tillums\_26 (FD),

### **Summary by clusters:**

There are 5 clusters represented in this pham: FQ, AK, FD, FB, FR,

Info for manual annotations of cluster AK:

- Start number 10 was manually annotated 83 times for cluster AK.

Info for manual annotations of cluster FB:

- Start number 12 was manually annotated 2 times for cluster FB.

Info for manual annotations of cluster FD:

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

Info for manual annotations of cluster FQ:

- Start number 12 was manually annotated 1 time for cluster FQ.

**Gene Information:**

Gene: Albanese\_25 Start: 20058, Stop: 20894, Start Num: 10

Candidate Starts for Albanese\_25:

(Start: 10 @20058 has 83 MA's), (18, 20124), (23, 20220), (24, 20250), (25, 20253), (27, 20268), (33, 20394), (34, 20397), (35, 20406), (45, 20550), (46, 20559), (49, 20589), (51, 20607), (53, 20640), (54, 20646), (62, 20760), (71, 20832), (73, 20859), (74, 20871),

Gene: Aledel\_21 Start: 18421, Stop: 19260, Start Num: 10

Candidate Starts for Aledel\_21:

(Start: 10 @18421 has 83 MA's), (19, 18517), (27, 18637), (33, 18763), (35, 18775), (45, 18916), (53, 19006), (60, 19111), (71, 19198), (73, 19225),

Gene: Anjali\_20 Start: 15722, Stop: 16366, Start Num: 13

Candidate Starts for Anjali\_20:

(1, 15368), (6, 15509), (7, 15665), (Start: 13 @15722 has 4 MA's), (17, 15773), (21, 15860), (32, 16040), (34, 16052), (45, 16211),

Gene: AnnabelLee\_21 Start: 14177, Stop: 15061, Start Num: 13

Candidate Starts for AnnabelLee\_21:

(Start: 13 @14177 has 4 MA's), (29, 14399), (36, 14525), (39, 14549), (40, 14585), (41, 14612), (44, 14663), (76, 15017),

Gene: AppleCider\_25 Start: 20046, Stop: 20882, Start Num: 10

Candidate Starts for AppleCider\_25:

(5, 19797), (Start: 10 @20046 has 83 MA's), (24, 20238), (27, 20256), (34, 20385), (35, 20394), (37, 20415), (38, 20424), (44, 20532), (45, 20538), (53, 20628), (54, 20634), (60, 20733), (68, 20805), (73, 20847),

Gene: AustinPowers\_21 Start: 18422, Stop: 19261, Start Num: 10

Candidate Starts for AustinPowers\_21:

(Start: 10 @18422 has 83 MA's), (19, 18518), (27, 18638), (33, 18764), (35, 18776), (45, 18917), (53, 19007), (58, 19091), (60, 19112), (71, 19199), (73, 19226),

Gene: Beethoven\_25 Start: 19983, Stop: 20840, Start Num: 10

Candidate Starts for Beethoven\_25:

(Start: 10 @19983 has 83 MA's), (24, 20175), (25, 20178), (26, 20190), (42, 20439), (44, 20469), (45, 20475), (53, 20565), (54, 20571), (60, 20670), (64, 20727), (67, 20760), (71, 20778), (72, 20784), (73, 20805),

Gene: Bennie\_21 Start: 18441, Stop: 19298, Start Num: 10

Candidate Starts for Bennie\_21:

(5, 18192), (Start: 10 @18441 has 83 MA's), (24, 18633), (27, 18651), (34, 18780), (38, 18819), (44, 18927), (45, 18933), (53, 19023), (54, 19029), (57, 19074), (64, 19185), (71, 19236), (73, 19263),

Gene: BigMack\_21 Start: 18430, Stop: 19293, Start Num: 10

Candidate Starts for BigMack\_21:

(Start: 10 @18430 has 83 MA's), (24, 18625), (27, 18643), (33, 18769), (34, 18772), (38, 18811), (44, 18919), (45, 18925), (47, 18955), (53, 19015), (54, 19021), (57, 19066), (60, 19120), (64, 19177), (71, 19231), (73, 19258),

Gene: Bodacious\_21 Start: 18443, Stop: 19306, Start Num: 10

Candidate Starts for Bodacious\_21:

(Start: 10 @18443 has 83 MA's), (24, 18638), (27, 18656), (34, 18785), (38, 18824), (44, 18932), (45, 18938), (47, 18968), (53, 19028), (54, 19034), (57, 19079), (61, 19139), (64, 19190), (71, 19244), (73, 19271),

Gene: BrayBeast\_22 Start: 17377, Stop: 18099, Start Num: 12

Candidate Starts for BrayBeast\_22:

(Start: 12 @17377 has 3 MA's), (17, 17431), (20, 17515), (23, 17530), (28, 17593), (40, 17788), (45, 17875), (53, 17950), (56, 17989), (57, 18001),

Gene: BrotherBLo\_25 Start: 19989, Stop: 20846, Start Num: 10

Candidate Starts for BrotherBLo\_25:

(Start: 10 @19989 has 83 MA's), (24, 20181), (25, 20184), (26, 20196), (38, 20367), (42, 20445), (44, 20475), (45, 20481), (53, 20571), (54, 20577), (60, 20676), (64, 20733), (71, 20784), (72, 20790), (73, 20811),

Gene: CallieOMalley\_25 Start: 20046, Stop: 20882, Start Num: 10

Candidate Starts for CallieOMalley\_25:

(5, 19797), (Start: 10 @20046 has 83 MA's), (24, 20238), (27, 20256), (33, 20382), (34, 20385), (35, 20394), (37, 20415), (38, 20424), (44, 20532), (45, 20538), (53, 20628), (54, 20634), (60, 20733), (68, 20805), (73, 20847),

Gene: Canowicakte\_25 Start: 20081, Stop: 20917, Start Num: 10

Candidate Starts for Canowicakte\_25:

(5, 19832), (Start: 10 @20081 has 83 MA's), (24, 20273), (27, 20291), (34, 20420), (35, 20429), (37, 20450), (38, 20459), (44, 20567), (45, 20573), (53, 20663), (54, 20669), (60, 20768), (68, 20840), (73, 20882),

Gene: Carpal\_25 Start: 19990, Stop: 20847, Start Num: 10

Candidate Starts for Carpal\_25:

(Start: 10 @19990 has 83 MA's), (24, 20182), (25, 20185), (26, 20197), (38, 20368), (42, 20446), (44, 20476), (45, 20482), (53, 20572), (54, 20578), (60, 20677), (64, 20734), (67, 20767), (71, 20785), (72, 20791), (73, 20812),

Gene: ChewChew\_21 Start: 18442, Stop: 19305, Start Num: 10

Candidate Starts for ChewChew\_21:

(Start: 10 @18442 has 83 MA's), (24, 18637), (27, 18655), (34, 18784), (38, 18823), (44, 18931), (45, 18937), (47, 18967), (53, 19027), (54, 19033), (57, 19078), (61, 19138), (64, 19189), (71, 19243), (73, 19270),

Gene: Cholula\_25 Start: 20035, Stop: 20892, Start Num: 10

Candidate Starts for Cholula\_25:

(Start: 10 @20035 has 83 MA's), (24, 20227), (25, 20230), (26, 20242), (38, 20413), (42, 20491), (44, 20521), (45, 20527), (53, 20617), (54, 20623), (60, 20722), (64, 20779), (70, 20827), (71, 20830), (72, 20836), (73, 20857),

Gene: Chridison\_21 Start: 18422, Stop: 19261, Start Num: 10

Candidate Starts for Chridison\_21:

(Start: 10 @18422 has 83 MA's), (19, 18518), (27, 18638), (33, 18764), (35, 18776), (45, 18917), (53, 19007), (60, 19112), (71, 19199), (73, 19226),

Gene: Christian\_21 Start: 18443, Stop: 19306, Start Num: 10

Candidate Starts for Christian\_21:

(Start: 10 @18443 has 83 MA's), (24, 18638), (27, 18656), (33, 18782), (34, 18785), (35, 18794), (38, 18824), (44, 18932), (45, 18938), (47, 18968), (53, 19028), (54, 19034), (57, 19079), (61, 19139), (64, 19190), (71, 19244), (73, 19271),

Gene: CristinaYang\_21 Start: 18443, Stop: 19306, Start Num: 10

Candidate Starts for CristinaYang\_21:

(Start: 10 @18443 has 83 MA's), (24, 18638), (27, 18656), (34, 18785), (38, 18824), (44, 18932), (45, 18938), (47, 18968), (53, 19028), (54, 19034), (57, 19079), (61, 19139), (64, 19190), (71, 19244), (73, 19271),

Gene: Daiboju\_21 Start: 18436, Stop: 19278, Start Num: 10

Candidate Starts for Daiboju\_21:

(2, 18094), (5, 18187), (Start: 10 @18436 has 83 MA's), (27, 18652), (45, 18931), (51, 18988), (53, 19021), (54, 19027), (60, 19126), (63, 19150), (66, 19183), (71, 19216), (73, 19243),

Gene: Dino\_25 Start: 19988, Stop: 20845, Start Num: 10

Candidate Starts for Dino\_25:

(Start: 10 @19988 has 83 MA's), (24, 20180), (25, 20183), (26, 20195), (27, 20198), (38, 20366), (42, 20444), (44, 20474), (45, 20480), (53, 20570), (54, 20576), (60, 20675), (64, 20732), (71, 20783), (72, 20789), (73, 20810),

Gene: DrRobert\_21 Start: 18443, Stop: 19306, Start Num: 10

Candidate Starts for DrRobert\_21:

(Start: 10 @18443 has 83 MA's), (24, 18638), (27, 18656), (33, 18782), (34, 18785), (35, 18794), (38, 18824), (44, 18932), (45, 18938), (47, 18968), (53, 19028), (54, 19034), (57, 19079), (61, 19139), (64, 19190), (71, 19244), (73, 19271),

Gene: DreamTeam\_21 Start: 18481, Stop: 19338, Start Num: 10

Candidate Starts for DreamTeam\_21:

(5, 18232), (Start: 10 @18481 has 83 MA's), (24, 18673), (27, 18691), (33, 18817), (34, 18820), (35, 18829), (37, 18850), (38, 18859), (44, 18967), (45, 18973), (47, 19003), (53, 19063), (54, 19069), (57, 19114), (64, 19225), (73, 19303),

Gene: Dunamis\_24 Start: 15879, Stop: 16523, Start Num: 13

Candidate Starts for Dunamis\_24:

(8, 15831), (Start: 13 @15879 has 4 MA's), (17, 15930), (20, 16014), (21, 16017), (27, 16080), (32, 16197), (34, 16209), (45, 16368),

Gene: EstebanJulior\_21 Start: 18446, Stop: 19306, Start Num: 10

Candidate Starts for EstebanJulior\_21:

(5, 18197), (Start: 10 @18446 has 83 MA's), (16, 18500), (23, 18608), (25, 18641), (26, 18653), (27, 18656), (34, 18785), (44, 18932), (45, 18938), (47, 18968), (53, 19028), (54, 19034), (57, 19079), (64, 19190), (71, 19244), (73, 19271),

Gene: Eunoia\_21 Start: 18421, Stop: 19260, Start Num: 10

Candidate Starts for Eunoia\_21:

(Start: 10 @18421 has 83 MA's), (19, 18517), (27, 18637), (33, 18763), (35, 18775), (45, 18916), (53, 19006), (60, 19111), (71, 19198), (73, 19225),

Gene: Fluke\_25 Start: 20031, Stop: 20888, Start Num: 10

Candidate Starts for Fluke\_25:

(Start: 10 @20031 has 83 MA's), (24, 20223), (25, 20226), (26, 20238), (38, 20409), (42, 20487), (44, 20517), (45, 20523), (53, 20613), (54, 20619), (60, 20718), (64, 20775), (67, 20808), (71, 20826), (72, 20832), (73, 20853),

Gene: Gisselle\_21 Start: 18481, Stop: 19338, Start Num: 10

Candidate Starts for Gisselle\_21:

(5, 18232), (Start: 10 @18481 has 83 MA's), (24, 18673), (27, 18691), (33, 18817), (34, 18820), (35, 18829), (37, 18850), (38, 18859), (44, 18967), (45, 18973), (47, 19003), (53, 19063), (54, 19069), (57, 19114), (64, 19225), (73, 19303),

Gene: Glenn\_25 Start: 20040, Stop: 20897, Start Num: 10

Candidate Starts for Glenn\_25:

(Start: 10 @20040 has 83 MA's), (24, 20232), (25, 20235), (26, 20247), (38, 20418), (42, 20496), (44, 20526), (45, 20532), (53, 20622), (54, 20628), (60, 20727), (64, 20784), (67, 20817), (71, 20835), (72, 20841), (73, 20862),

Gene: GreenHearts\_25 Start: 20150, Stop: 20986, Start Num: 10

Candidate Starts for GreenHearts\_25:

(Start: 10 @20150 has 83 MA's), (18, 20216), (23, 20312), (24, 20342), (25, 20345), (27, 20360), (33, 20486), (34, 20489), (35, 20498), (38, 20528), (45, 20642), (46, 20651), (49, 20681), (51, 20699), (53, 20732), (54, 20738), (62, 20852), (71, 20924), (73, 20951), (74, 20963),

Gene: Greenhouse\_25 Start: 20074, Stop: 20910, Start Num: 10

Candidate Starts for Greenhouse\_25:

(Start: 10 @20074 has 83 MA's), (18, 20140), (23, 20236), (24, 20266), (25, 20269), (27, 20284), (33, 20410), (34, 20413), (35, 20422), (45, 20566), (46, 20575), (49, 20605), (51, 20623), (53, 20656), (54, 20662), (62, 20776), (71, 20848), (73, 20875), (74, 20887),

Gene: HeadNerd\_21 Start: 18441, Stop: 19298, Start Num: 10

Candidate Starts for HeadNerd\_21:

(5, 18192), (Start: 10 @18441 has 83 MA's), (24, 18633), (27, 18651), (34, 18780), (38, 18819), (44, 18927), (45, 18933), (53, 19023), (54, 19029), (57, 19074), (64, 19185), (71, 19236), (73, 19263),

Gene: Herb\_21 Start: 18436, Stop: 19278, Start Num: 10

Candidate Starts for Herb\_21:

(2, 18094), (5, 18187), (Start: 10 @18436 has 83 MA's), (27, 18652), (45, 18931), (51, 18988), (53, 19021), (54, 19027), (60, 19126), (63, 19150), (66, 19183), (71, 19216), (73, 19243),

Gene: Huckleberry\_21 Start: 18441, Stop: 19298, Start Num: 10

Candidate Starts for Huckleberry\_21:

(5, 18192), (Start: 10 @18441 has 83 MA's), (24, 18633), (27, 18651), (34, 18780), (38, 18819), (44, 18927), (45, 18933), (53, 19023), (54, 19029), (57, 19074), (64, 19185), (71, 19236), (73, 19263),

Gene: Hum25\_23 Start: 17016, Stop: 17738, Start Num: 12

Candidate Starts for Hum25\_23:

(9, 16989), (Start: 12 @17016 has 3 MA's), (18, 17079), (21, 17157), (24, 17202), (28, 17232), (30, 17241), (32, 17337), (40, 17427), (43, 17502), (45, 17514), (50, 17550), (52, 17580), (53, 17592), (57, 17643), (59, 17682),

Gene: HunterDalle\_21 Start: 18421, Stop: 19260, Start Num: 10

Candidate Starts for HunterDalle\_21:

(Start: 10 @18421 has 83 MA's), (19, 18517), (22, 18583), (27, 18637), (33, 18763), (35, 18775), (45, 18916), (53, 19006), (58, 19090), (60, 19111), (71, 19198), (73, 19225),



Gene: Huntingdon\_25 Start: 20042, Stop: 20878, Start Num: 10

Candidate Starts for Huntingdon\_25:

(Start: 10 @20042 has 83 MA's), (24, 20234), (26, 20249), (33, 20378), (34, 20381), (35, 20390), (37, 20411), (38, 20420), (42, 20498), (44, 20528), (45, 20534), (46, 20543), (49, 20573), (53, 20624), (54, 20630), (61, 20735), (63, 20753), (65, 20786), (71, 20816), (73, 20843), (74, 20855),

Gene: Immaculata\_25 Start: 20034, Stop: 20891, Start Num: 10

Candidate Starts for Immaculata\_25:

(Start: 10 @20034 has 83 MA's), (24, 20226), (25, 20229), (26, 20241), (38, 20412), (42, 20490), (44, 20520), (45, 20526), (53, 20616), (54, 20622), (60, 20721), (64, 20778), (70, 20826), (71, 20829), (72, 20835), (73, 20856),

Gene: Joann\_25 Start: 20008, Stop: 20844, Start Num: 10

Candidate Starts for Joann\_25:

(Start: 10 @20008 has 83 MA's), (18, 20074), (23, 20170), (24, 20200), (25, 20203), (26, 20215), (27, 20218), (33, 20344), (34, 20347), (35, 20356), (38, 20386), (45, 20500), (46, 20509), (49, 20539), (51, 20557), (53, 20590), (54, 20596), (62, 20710), (71, 20782), (73, 20809), (74, 20821),

Gene: Jumboset\_25 Start: 19983, Stop: 20840, Start Num: 10

Candidate Starts for Jumboset\_25:

(Start: 10 @19983 has 83 MA's), (24, 20175), (25, 20178), (26, 20190), (38, 20361), (42, 20439), (44, 20469), (45, 20475), (53, 20565), (54, 20571), (60, 20670), (64, 20727), (71, 20778), (72, 20784), (73, 20805),

Gene: Kalizoi\_25 Start: 19982, Stop: 20839, Start Num: 10

Candidate Starts for Kalizoi\_25:

(Start: 10 @19982 has 83 MA's), (24, 20174), (25, 20177), (26, 20189), (27, 20192), (38, 20360), (42, 20438), (44, 20468), (45, 20474), (53, 20564), (54, 20570), (60, 20669), (64, 20726), (71, 20777), (72, 20783), (73, 20804),

Gene: KingBob\_21 Start: 18436, Stop: 19278, Start Num: 10

Candidate Starts for KingBob\_21:

(2, 18094), (5, 18187), (Start: 10 @18436 has 83 MA's), (27, 18652), (45, 18931), (51, 18988), (53, 19021), (54, 19027), (60, 19126), (63, 19150), (66, 19183), (71, 19216), (73, 19243),

Gene: Kittykat\_21 Start: 18465, Stop: 19322, Start Num: 10

Candidate Starts for Kittykat\_21:

(Start: 10 @18465 has 83 MA's), (24, 18657), (27, 18675), (33, 18801), (34, 18804), (38, 18843), (44, 18951), (45, 18957), (47, 18987), (53, 19047), (54, 19053), (57, 19098), (60, 19152), (64, 19209), (71, 19260), (73, 19287),

Gene: Korra\_26 Start: 19988, Stop: 20845, Start Num: 10

Candidate Starts for Korra\_26:

(Start: 10 @19988 has 83 MA's), (24, 20180), (25, 20183), (26, 20195), (38, 20366), (42, 20444), (44, 20474), (45, 20480), (53, 20570), (54, 20576), (60, 20675), (64, 20732), (71, 20783), (72, 20789), (73, 20810),

Gene: Lakshmi\_25 Start: 20034, Stop: 20870, Start Num: 10

Candidate Starts for Lakshmi\_25:

(Start: 10 @20034 has 83 MA's), (18, 20100), (23, 20196), (24, 20226), (25, 20229), (27, 20244), (33, 20370), (34, 20373), (35, 20382), (45, 20526), (46, 20535), (49, 20565), (51, 20583), (53, 20616), (54, 20622), (62, 20736), (71, 20808), (73, 20835), (74, 20847),

Gene: Lasagna\_21 Start: 18443, Stop: 19306, Start Num: 10

Candidate Starts for Lasagna\_21:

(Start: 10 @18443 has 83 MA's), (24, 18638), (27, 18656), (34, 18785), (35, 18794), (38, 18824), (44, 18932), (45, 18938), (47, 18968), (53, 19028), (54, 19034), (57, 19079), (61, 19139), (64, 19190), (71, 19244), (73, 19271),

Gene: Lennox\_21 Start: 18431, Stop: 19294, Start Num: 10

Candidate Starts for Lennox\_21:

(Start: 10 @18431 has 83 MA's), (24, 18626), (27, 18644), (34, 18773), (38, 18812), (44, 18920), (45, 18926), (47, 18956), (53, 19016), (54, 19022), (57, 19067), (61, 19127), (64, 19178), (71, 19232), (73, 19259),

Gene: LilStuart\_21 Start: 18431, Stop: 19294, Start Num: 10

Candidate Starts for LilStuart\_21:

(Start: 10 @18431 has 83 MA's), (24, 18626), (27, 18644), (34, 18773), (38, 18812), (44, 18920), (45, 18926), (47, 18956), (53, 19016), (54, 19022), (57, 19067), (61, 19127), (64, 19178), (71, 19232), (73, 19259),

Gene: Litotes\_25 Start: 20031, Stop: 20867, Start Num: 10

Candidate Starts for Litotes\_25:

(5, 19782), (Start: 10 @20031 has 83 MA's), (19, 20121), (24, 20223), (27, 20241), (34, 20370), (35, 20379), (37, 20400), (44, 20517), (45, 20523), (53, 20613), (54, 20619), (60, 20718), (68, 20790), (73, 20832),

Gene: Lucy\_21 Start: 18423, Stop: 19286, Start Num: 10

Candidate Starts for Lucy\_21:

(Start: 10 @18423 has 83 MA's), (24, 18618), (27, 18636), (33, 18762), (34, 18765), (35, 18774), (38, 18804), (44, 18912), (45, 18918), (47, 18948), (53, 19008), (54, 19014), (57, 19059), (61, 19119), (64, 19170), (71, 19224), (73, 19251),

Gene: Makoto\_21 Start: 18443, Stop: 19306, Start Num: 10

Candidate Starts for Makoto\_21:

(Start: 10 @18443 has 83 MA's), (24, 18638), (27, 18656), (33, 18782), (34, 18785), (38, 18824), (44, 18932), (45, 18938), (47, 18968), (53, 19028), (54, 19034), (57, 19079), (61, 19139), (64, 19190), (71, 19244), (73, 19271),

Gene: MamaPearl\_21 Start: 18446, Stop: 19306, Start Num: 10

Candidate Starts for MamaPearl\_21:

(5, 18197), (Start: 10 @18446 has 83 MA's), (16, 18500), (23, 18608), (25, 18641), (26, 18653), (27, 18656), (34, 18785), (44, 18932), (45, 18938), (47, 18968), (53, 19028), (54, 19034), (57, 19079), (64, 19190), (71, 19244), (73, 19271),

Gene: Maria1952\_21 Start: 18436, Stop: 19278, Start Num: 10

Candidate Starts for Maria1952\_21:

(2, 18094), (5, 18187), (Start: 10 @18436 has 83 MA's), (27, 18652), (45, 18931), (51, 18988), (53, 19021), (54, 19027), (60, 19126), (63, 19150), (66, 19183), (71, 19216), (73, 19243),

Gene: MeganNoll\_25 Start: 20040, Stop: 20897, Start Num: 10

Candidate Starts for MeganNoll\_25:

(Start: 10 @20040 has 83 MA's), (24, 20232), (25, 20235), (26, 20247), (38, 20418), (42, 20496), (44, 20526), (45, 20532), (53, 20622), (54, 20628), (60, 20727), (64, 20784), (71, 20835), (72, 20841), (73, 20862),

Gene: Mendel\_22 Start: 15637, Stop: 16281, Start Num: 13

Candidate Starts for Mendel\_22:

(8, 15589), (Start: 13 @15637 has 4 MA's), (17, 15688), (21, 15775), (32, 15955), (34, 15967), (45, 16126),

Gene: Misaeng\_25 Start: 20124, Stop: 20981, Start Num: 10

Candidate Starts for Misaeng\_25:

(Start: 10 @20124 has 83 MA's), (18, 20190), (23, 20286), (24, 20316), (26, 20331), (33, 20460), (34, 20463), (35, 20472), (38, 20502), (44, 20610), (45, 20616), (47, 20646), (49, 20655), (53, 20706), (54, 20712), (55, 20733), (57, 20757), (62, 20826), (64, 20868), (69, 20916), (71, 20919), (73, 20946), (74, 20958),

Gene: Moki\_21 Start: 18441, Stop: 19298, Start Num: 10

Candidate Starts for Moki\_21:

(5, 18192), (Start: 10 @18441 has 83 MA's), (24, 18633), (27, 18651), (34, 18780), (38, 18819), (44, 18927), (45, 18933), (53, 19023), (54, 19029), (57, 19074), (64, 19185), (71, 19236), (73, 19263),

Gene: MrGloopy\_25 Start: 19974, Stop: 20831, Start Num: 10

Candidate Starts for MrGloopy\_25:

(Start: 10 @19974 has 83 MA's), (24, 20166), (25, 20169), (26, 20181), (38, 20352), (42, 20430), (44, 20460), (45, 20466), (53, 20556), (54, 20562), (60, 20661), (64, 20718), (71, 20769), (72, 20775), (73, 20796),

Gene: Nancia\_21 Start: 18443, Stop: 19306, Start Num: 10

Candidate Starts for Nancia\_21:

(Start: 10 @18443 has 83 MA's), (24, 18638), (27, 18656), (34, 18785), (38, 18824), (44, 18932), (45, 18938), (47, 18968), (53, 19028), (54, 19034), (57, 19079), (61, 19139), (64, 19190), (71, 19244), (73, 19271),

Gene: Nubia\_25 Start: 19994, Stop: 20830, Start Num: 10

Candidate Starts for Nubia\_25:

(Start: 10 @19994 has 83 MA's), (18, 20060), (23, 20156), (24, 20186), (25, 20189), (27, 20204), (33, 20330), (34, 20333), (35, 20342), (38, 20372), (45, 20486), (46, 20495), (49, 20525), (51, 20543), (53, 20576), (54, 20582), (62, 20696), (71, 20768), (73, 20795), (74, 20807),

Gene: OMalley\_21 Start: 18421, Stop: 19260, Start Num: 10

Candidate Starts for OMalley\_21:

(Start: 10 @18421 has 83 MA's), (19, 18517), (27, 18637), (33, 18763), (35, 18775), (45, 18916), (53, 19006), (60, 19111), (71, 19198), (73, 19225),

Gene: OurGirlNessie\_21 Start: 18423, Stop: 19286, Start Num: 10

Candidate Starts for OurGirlNessie\_21:

(Start: 10 @18423 has 83 MA's), (24, 18618), (27, 18636), (33, 18762), (34, 18765), (35, 18774), (38, 18804), (44, 18912), (45, 18918), (47, 18948), (53, 19008), (54, 19014), (57, 19059), (61, 19119), (64, 19170), (71, 19224), (73, 19251),

Gene: Oxynfrius\_25 Start: 20007, Stop: 20843, Start Num: 10

Candidate Starts for Oxynfrius\_25:

(Start: 10 @20007 has 83 MA's), (18, 20073), (23, 20169), (24, 20199), (25, 20202), (27, 20217), (33, 20343), (34, 20346), (35, 20355), (38, 20385), (45, 20499), (46, 20508), (49, 20538), (51, 20556), (53, 20589), (54, 20595), (62, 20709), (71, 20781), (73, 20808), (74, 20820),

Gene: PartyCup\_25 Start: 20078, Stop: 20914, Start Num: 10

Candidate Starts for PartyCup\_25:

(5, 19829), (Start: 10 @20078 has 83 MA's), (24, 20270), (27, 20288), (33, 20414), (34, 20417), (35, 20426), (37, 20447), (38, 20456), (44, 20564), (45, 20570), (53, 20660), (54, 20666), (60, 20765), (68, 20837), (73, 20879),

Gene: PinkFriday\_21 Start: 18457, Stop: 19320, Start Num: 10

Candidate Starts for PinkFriday\_21:

(Start: 10 @18457 has 83 MA's), (27, 18673), (45, 18952), (47, 18982), (51, 19009), (53, 19042), (54, 19048), (57, 19093), (60, 19147), (64, 19204), (71, 19258), (73, 19285),

Gene: PitaDog\_21 Start: 18434, Stop: 19297, Start Num: 10

Candidate Starts for PitaDog\_21:

(Start: 10 @18434 has 83 MA's), (24, 18629), (27, 18647), (33, 18773), (34, 18776), (35, 18785), (38, 18815), (44, 18923), (45, 18929), (47, 18959), (53, 19019), (54, 19025), (57, 19070), (61, 19130), (64, 19181), (71, 19235), (73, 19262),

Gene: Potatoes\_25 Start: 20035, Stop: 20892, Start Num: 10

Candidate Starts for Potatoes\_25:

(Start: 10 @20035 has 83 MA's), (24, 20227), (25, 20230), (26, 20242), (38, 20413), (42, 20491), (44, 20521), (45, 20527), (53, 20617), (54, 20623), (60, 20722), (64, 20779), (70, 20827), (71, 20830), (72, 20836), (73, 20857),

Gene: Preamble\_21 Start: 18442, Stop: 19299, Start Num: 10

Candidate Starts for Preamble\_21:

(Start: 10 @18442 has 83 MA's), (24, 18634), (27, 18652), (33, 18778), (34, 18781), (38, 18820), (44, 18928), (45, 18934), (47, 18964), (53, 19024), (54, 19030), (57, 19075), (60, 19129), (64, 19186), (71, 19237), (73, 19264),

Gene: Pterodactyl\_21 Start: 18424, Stop: 19287, Start Num: 10

Candidate Starts for Pterodactyl\_21:

(Start: 10 @18424 has 83 MA's), (24, 18619), (27, 18637), (33, 18763), (34, 18766), (38, 18805), (44, 18913), (45, 18919), (47, 18949), (53, 19009), (54, 19015), (57, 19060), (61, 19120), (64, 19171), (71, 19225), (73, 19252),

Gene: Pumancara\_21 Start: 18439, Stop: 19302, Start Num: 10

Candidate Starts for Pumancara\_21:

(Start: 10 @18439 has 83 MA's), (27, 18655), (45, 18934), (47, 18964), (51, 18991), (53, 19024), (54, 19030), (57, 19075), (60, 19129), (64, 19186), (71, 19240), (73, 19267),

Gene: RAP15\_25 Start: 20040, Stop: 20897, Start Num: 10

Candidate Starts for RAP15\_25:

(Start: 10 @20040 has 83 MA's), (24, 20232), (25, 20235), (26, 20247), (38, 20418), (42, 20496), (44, 20526), (45, 20532), (53, 20622), (54, 20628), (60, 20727), (64, 20784), (71, 20835), (72, 20841), (73, 20862),

Gene: RcigaStruga\_25 Start: 20042, Stop: 20878, Start Num: 10

Candidate Starts for RcigaStruga\_25:

(Start: 10 @20042 has 83 MA's), (24, 20234), (26, 20249), (33, 20378), (34, 20381), (35, 20390), (37, 20411), (38, 20420), (42, 20498), (44, 20528), (45, 20534), (46, 20543), (49, 20573), (53, 20624), (54, 20630), (61, 20735), (63, 20753), (65, 20786), (71, 20816), (73, 20843), (74, 20855),

Gene: Riovina\_21 Start: 18421, Stop: 19260, Start Num: 10

Candidate Starts for Riovina\_21:

(Start: 10 @18421 has 83 MA's), (19, 18517), (27, 18637), (33, 18763), (35, 18775), (45, 18916), (53, 19006), (60, 19111), (71, 19198), (73, 19225),

Gene: Riverdale\_25 Start: 19970, Stop: 20827, Start Num: 10

Candidate Starts for Riverdale\_25:

(Start: 10 @19970 has 83 MA's), (24, 20162), (25, 20165), (26, 20177), (42, 20426), (44, 20456), (45, 20462), (53, 20552), (54, 20558), (60, 20657), (64, 20714), (67, 20747), (71, 20765), (72, 20771), (73, 20792),

Gene: Rozby\_25 Start: 19971, Stop: 20828, Start Num: 10

Candidate Starts for Rozby\_25:

(Start: 10 @19971 has 83 MA's), (24, 20163), (25, 20166), (26, 20178), (42, 20427), (44, 20457), (45, 20463), (53, 20553), (54, 20559), (60, 20658), (64, 20715), (67, 20748), (71, 20766), (72, 20772), (73, 20793),

Gene: Sarge\_22 Start: 17291, Stop: 18013, Start Num: 12

Candidate Starts for Sarge\_22:

(Start: 12 @17291 has 3 MA's), (17, 17345), (20, 17429), (23, 17444), (28, 17507), (40, 17702), (45, 17789), (53, 17864), (56, 17903), (57, 17915),

Gene: Savage2526\_25 Start: 20034, Stop: 20891, Start Num: 10

Candidate Starts for Savage2526\_25:

(Start: 10 @20034 has 83 MA's), (24, 20226), (25, 20229), (26, 20241), (38, 20412), (42, 20490), (44, 20520), (45, 20526), (53, 20616), (54, 20622), (60, 20721), (64, 20778), (71, 20829), (72, 20835), (73, 20856),

Gene: Scuttle\_25 Start: 20039, Stop: 20896, Start Num: 10

Candidate Starts for Scuttle\_25:

(Start: 10 @20039 has 83 MA's), (24, 20231), (25, 20234), (26, 20246), (38, 20417), (42, 20495), (44, 20525), (45, 20531), (53, 20621), (54, 20627), (60, 20726), (64, 20783), (71, 20834), (72, 20840), (73, 20861),

Gene: Sergei\_21 Start: 18436, Stop: 19278, Start Num: 10

Candidate Starts for Sergei\_21:

(2, 18094), (5, 18187), (Start: 10 @18436 has 83 MA's), (27, 18652), (45, 18931), (51, 18988), (53, 19021), (54, 19027), (60, 19126), (63, 19150), (66, 19183), (71, 19216), (73, 19243),

Gene: Supakev\_21 Start: 18423, Stop: 19262, Start Num: 10

Candidate Starts for Supakev\_21:

(Start: 10 @18423 has 83 MA's), (19, 18519), (27, 18639), (33, 18765), (35, 18777), (45, 18918), (53, 19008), (60, 19113), (71, 19200), (73, 19227),

Gene: Suppi\_25 Start: 20081, Stop: 20917, Start Num: 10

Candidate Starts for Suppi\_25:

(5, 19832), (Start: 10 @20081 has 83 MA's), (24, 20273), (27, 20291), (34, 20420), (35, 20429), (37, 20450), (38, 20459), (44, 20567), (45, 20573), (53, 20663), (54, 20669), (60, 20768), (68, 20840), (73, 20882),

Gene: Swim\_25 Start: 16136, Stop: 16780, Start Num: 13

Candidate Starts for Swim\_25:

(8, 16088), (Start: 13 @16136 has 4 MA's), (17, 16187), (20, 16271), (21, 16274), (27, 16337), (32, 16454), (34, 16466), (45, 16625),

Gene: TMaxx\_21 Start: 14021, Stop: 14869, Start Num: 11

Candidate Starts for TMaxx\_21:

(11, 14021), (15, 14042), (24, 14210), (29, 14246), (31, 14291), (32, 14339), (39, 14396), (41, 14459), (48, 14525), (75, 14813), (77, 14834),

Gene: TattModd\_25 Start: 20033, Stop: 20890, Start Num: 10

Candidate Starts for TattModd\_25:

(Start: 10 @20033 has 83 MA's), (24, 20225), (25, 20228), (26, 20240), (38, 20411), (42, 20489), (44, 20519), (45, 20525), (53, 20615), (54, 20621), (60, 20720), (64, 20777), (67, 20810), (71, 20828), (72, 20834), (73, 20855),

Gene: Temper16\_21 Start: 18436, Stop: 19278, Start Num: 10

Candidate Starts for Temper16\_21:

(2, 18094), (5, 18187), (Start: 10 @18436 has 83 MA's), (27, 18652), (45, 18931), (51, 18988), (53, 19021), (54, 19027), (60, 19126), (63, 19150), (66, 19183), (71, 19216), (73, 19243),

Gene: Tillums\_26 Start: 16278, Stop: 16925, Start Num: 13

Candidate Starts for Tillums\_26:

(1, 15915), (3, 15957), (4, 15966), (6, 16056), (7, 16221), (Start: 13 @16278 has 4 MA's), (17, 16329), (20, 16413), (21, 16416), (32, 16596), (34, 16608), (45, 16770),

Gene: Urla\_21 Start: 18448, Stop: 19308, Start Num: 10

Candidate Starts for Urla\_21:

(5, 18199), (Start: 10 @18448 has 83 MA's), (16, 18502), (23, 18610), (24, 18640), (25, 18643), (26, 18655), (27, 18658), (34, 18787), (38, 18826), (44, 18934), (45, 18940), (47, 18970), (53, 19030), (54, 19036), (57, 19081), (64, 19192), (71, 19246), (73, 19273),

Gene: Vallejo\_25 Start: 19972, Stop: 20829, Start Num: 10

Candidate Starts for Vallejo\_25:

(Start: 10 @19972 has 83 MA's), (24, 20164), (25, 20167), (26, 20179), (38, 20350), (42, 20428), (44, 20458), (45, 20464), (53, 20554), (54, 20560), (60, 20659), (64, 20716), (67, 20749), (71, 20767), (72, 20773), (73, 20794),

Gene: Vulture\_21 Start: 18421, Stop: 19260, Start Num: 10

Candidate Starts for Vulture\_21:

(Start: 10 @18421 has 83 MA's), (19, 18517), (22, 18583), (27, 18637), (33, 18763), (35, 18775), (45, 18916), (53, 19006), (58, 19090), (60, 19111), (71, 19198), (73, 19225),

Gene: Wawa\_25 Start: 20009, Stop: 20866, Start Num: 10

Candidate Starts for Wawa\_25:

(Start: 10 @20009 has 83 MA's), (14, 20021), (24, 20201), (25, 20204), (26, 20216), (42, 20465), (44, 20495), (45, 20501), (53, 20591), (54, 20597), (60, 20696), (64, 20753), (67, 20786), (71, 20804), (72, 20810), (73, 20831),

Gene: Wayne\_25 Start: 20127, Stop: 20963, Start Num: 10

Candidate Starts for Wayne\_25:

(5, 19878), (Start: 10 @20127 has 83 MA's), (24, 20319), (27, 20337), (33, 20463), (34, 20466), (35, 20475), (37, 20496), (38, 20505), (44, 20613), (45, 20619), (53, 20709), (54, 20715), (60, 20814), (68, 20886), (73, 20928),

Gene: WonderBoy\_21 Start: 18424, Stop: 19287, Start Num: 10

Candidate Starts for WonderBoy\_21:

(Start: 10 @18424 has 83 MA's), (24, 18619), (27, 18637), (33, 18763), (34, 18766), (38, 18805), (44, 18913), (45, 18919), (47, 18949), (53, 19009), (54, 19015), (57, 19060), (64, 19171), (71, 19225), (73, 19252),

Gene: Zorro\_25 Start: 19988, Stop: 20845, Start Num: 10

Candidate Starts for Zorro\_25:

(Start: 10 @19988 has 83 MA's), (24, 20180), (25, 20183), (26, 20195), (27, 20198), (38, 20366), (42, 20444), (44, 20474), (45, 20480), (53, 20570), (54, 20576), (60, 20675), (64, 20732), (71, 20783), (72, 20789), (73, 20810),