





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 299947 Report

This analysis was run 06/08/26 on database version 649.

Pham number 299947 has 119 members, 20 are drafts.

Phages represented in each track:

- Track 1 : Michley\_72
- Track 2 : Hope4ever\_71
- Track 3 : Nerujay\_74
- Track 4 : Blarby\_66
- Track 5 : Doomslug\_63
- Track 6 : Jinglebell\_59, Constella\_109, Ochi17\_57, Llama\_59, Modragons\_58, Seabastian\_59, AlpineSix\_59, OfUltron\_59
- Track 7 : XFactor\_52, MilleniumForce\_58
- Track 8 : Topiatin\_60
- Track 9 : IrishSherpFalk\_55, Phanphagia\_52, Shauna1\_53, Spartacus\_56, SuperGrey\_58, WillSterrel\_55
- Track 10 : Tweety\_54
- Track 11 : Hades\_55
- Track 12 : lbhubesi\_54, Aubs\_55, Guppsters\_55, KristaRAM\_57
- Track 13 : StAnnes\_53
- Track 14 : Blexus\_52
- Track 15 : Estave1\_57
- Track 16 : Firehouse51\_55, Mutaforma13\_58, TChen\_54, LunaStella\_52
- Track 17 : DeadP\_60, Taj\_58
- Track 18 : Sassafras\_52, Inventum\_49
- Track 19 : Kersh\_56, ShroomBoi\_56
- Track 20 : Donkeykong\_58, Wee\_57
- Track 21 : Batiatus\_52
- Track 22 : Oksu\_58, Nichirin\_59
- Track 23 : EmiMonkey\_52, PhlipPhlop\_54
- Track 24 : Akhila\_46, MilanaBonita\_45
- Track 25 : SimranZ1\_54
- Track 26 : Moonbeam\_50, Emma\_54
- Track 27 : Juniper1\_52
- Track 28 : CaptainTrips\_51, MinionDave\_53, SG4\_51, Enby\_55
- Track 29 : JalFarm20\_66, Flathead\_54, Hegedechwinu\_54
- Track 30 : Filuzino\_52
- Track 31 : Melissauren88\_52
- Track 32 : Wachhund\_56
- Track 33 : Tchotchke\_55
- Track 34 : Rockne\_55, PMC\_51, Boomer\_59
- Track 35 : BlueCrab\_53

- Track 36 : Brushbloom\_57
- Track 37 : Ms6\_49
- Track 38 : Madiba\_52
- Track 39 : Bobi\_57
- Track 40 : Ovechkin\_53
- Track 41 : Che8\_57
- Track 42 : Spikelee\_61
- Track 43 : EleanorGeorge\_53
- Track 44 : Harley\_56
- Track 45 : Jabbawokkie\_68, Zapner\_67, Juice456\_55, Soul22\_58
- Track 46 : Avani\_62
- Track 47 : SilverChicken\_64
- Track 48 : Squirty\_57
- Track 49 : Okabe\_49
- Track 50 : Redno2\_102, Zelink\_106, Ejimix\_104, Ariel\_106, BronnyJames\_104, Lucky2013\_103, Courthouse\_101, Shaboozey\_104, Porcelain\_104, LittleE\_110, Hughesyang\_109, KashFlow\_103, Dallas\_111, Odette\_112, Phoebus\_111, Beem\_112, Nekros\_109, JuicyJay\_107, EricMillard\_103, Bagrid\_111, Squint\_104, MiaZeal\_106, Superphikiman\_103, Nibley\_99, Rearden\_100, Kalah2\_103, DmpstrDiver\_111, ThreeRngTarjay\_107
- Track 51 : Gonephishing\_100
- Track 52 : Halley\_112
- Track 53 : Marleymoo\_71, Bobby\_79, Hidrated\_73

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

The start number called the most often in the published annotations is 33, it was called in 94 of the 99 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Akhila\_46, AlpineSix\_59, Ariel\_106, Aubs\_55, Avani\_62, Bagrid\_111, Batiatus\_52, Beem\_112, Blarby\_66, BlueCrab\_53, Bobby\_79, Bobi\_57, Boomer\_59, BronnyJames\_104, Brushbloom\_57, CaptainTrips\_51, Che8\_57, Constella\_109, Courthouse\_101, Dallas\_111, DeadP\_60, DmpstrDiver\_111, Donkeykong\_58, Doomslug\_63, Ejimix\_104, EleanorGeorge\_53, EmiMonkey\_52, Emma\_54, Enby\_55, EricMillard\_103, Estave1\_57, Filuzino\_52, Firehouse51\_55, Flathead\_54, Gonephishing\_100, Guppsters\_55, Hades\_55, Halley\_112, Harley\_56, Hegedechwinu\_54, Hidrated\_73, Hughesyang\_109, Ibhubesi\_54, Inventum\_49, IrishSherpFalk\_55, Jabbawokkie\_68, JalFarm20\_66, Jinglebell\_59, Juice456\_55, JuicyJay\_107, Juniper1\_52, Kalah2\_103, KashFlow\_103, Kersh\_56, KristaRAM\_57, LittleE\_110, Llama\_59, Lucky2013\_103, LunaStella\_52, Madiba\_52, Marleymoo\_71, Melissauren88\_52, MiaZeal\_106, MilanaBonita\_45, MilleniumForce\_58, MinionDave\_53, Modragons\_58, Moonbeam\_50, Ms6\_49, Mutaforma13\_58, Nekros\_109, Nibley\_99, Ochi17\_57, Odette\_112, OfUltron\_59, Okabe\_49, Ovechkin\_53, PMC\_51, Phanphagia\_52, PhilipPhlop\_54, Phoebus\_111, Porcelain\_104, Rearden\_100, Redno2\_102, Rockne\_55, SG4\_51, Sassafras\_52, Sebastian\_59, Shaboozey\_104, Shauna1\_53, ShroomBoi\_56, SimranZ1\_54, Soul22\_58, Spartacus\_56, Spikelee\_61, Squint\_104, StAnnes\_53, SuperGrey\_58, Superphikiman\_103, TChen\_54, Taj\_58, ThreeRngTarjay\_107, Topiatin\_60, Tweety\_54, Wachhund\_56, Wee\_57, WillSterrel\_55, XFactor\_52, Zapner\_67,

Zelink\_106,

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

- Blexus\_52, Hope4ever\_71, Michley\_72, Nerujay\_74, Nichirin\_59, Oksu\_58, SilverChicken\_64, Squirty\_57, Tchotchke\_55,

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

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### Summary by start number:

Start 28:

- Found in 19 of 119 ( 16.0% ) of genes in pham
- Manual Annotations of this start: 1 of 99
- Called 5.3% of time when present
- Phage (with cluster) where this start called: Squirty\_57 (F3),

Start 32:

- Found in 3 of 119 ( 2.5% ) of genes in pham
- Manual Annotations of this start: 3 of 99
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Hope4ever\_71 (A1), Michley\_72 (A1), Nerujay\_74 (A1),

Start 33:

- Found in 119 of 119 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 94 of 99
- Called 92.4% of time when present
- Phage (with cluster) where this start called: Akhila\_46 (F1), AlpineSix\_59 (F1), Ariel\_106 (J), Aubs\_55 (F1), Avani\_62 (F2), Bagrid\_111 (J), Batiatus\_52 (F1), Beem\_112 (J), Blarby\_66 (F), BlueCrab\_53 (F1), Bobby\_79 (J), Bobi\_57 (F1), Boomer\_59 (F1), BronnyJames\_104 (J), Brushbloom\_57 (F1), CaptainTrips\_51 (F1), Che8\_57 (F1), Constella\_109 (J), Courthouse\_101 (J), Dallas\_111 (J), DeadP\_60 (F1), DmpstrDiver\_111 (J), Donkeykong\_58 (F1), Doomslug\_63 (F), Ejimix\_104 (J), EleanorGeorge\_53 (F1), EmiMonkey\_52 (F1), Emma\_54 (F1), Enby\_55 (F1), EricMillard\_103 (J), Estave1\_57 (F1), Filuzino\_52 (F1), Firehouse51\_55 (F1), Flathead\_54 (F1), Gonephishing\_100 (J), Guppsters\_55 (F1), Hades\_55 (F1), Halley\_112 (J), Harley\_56 (F1), Hegedechwinu\_54 (F1), Hidrated\_73 (J), Hughesyang\_109 (J), Ibhubesi\_54 (F1), Inventum\_49 (F1), IrishSherpFalk\_55 (F1), Jabbawokkie\_68 (F2), JalFarm20\_66 (F1), Jinglebell\_59 (F1), Juice456\_55 (F1), JuicyJay\_107 (J), Juniper1\_52 (F1), Kalah2\_103 (J), KashFlow\_103 (J), Kersh\_56 (F1), KristaRAM\_57 (F1), LittleE\_110 (J), Llama\_59 (F1), Lucky2013\_103 (J), LunaStella\_52 (F4), Madiba\_52 (F1), Marleymoo\_71 (J), Melissauren88\_52 (F1), MiaZeal\_106 (J), MilanaBonita\_45 (F1), MilleniumForce\_58 (F1), MinionDave\_53 (F1), Modragons\_58 (F1), Moonbeam\_50 (F1), Ms6\_49 (F1), Mutaforma13\_58 (F1), Nekros\_109 (J), Nibley\_99 (J), Ochi17\_57 (F1), Odette\_112 (J), OfUltron\_59 (F1), Okabe\_49 (F8), Ovechkin\_53 (F1), PMC\_51 (F1), Phanphagia\_52 (F1), PhilipPhlop\_54 (F1), Phoebus\_111 (J), Porcelain\_104 (J), Rearden\_100 (J), Redno2\_102 (J), Rockne\_55 (F1), SG4\_51 (F1), Sassafras\_52 (F1), Seabastian\_59 (F1), Shaboozey\_104 (J), Shauna1\_53 (F1), ShroomBoi\_56 (F1), SimranZ1\_54 (F1), Soul22\_58 (F2), Spartacus\_56 (F1), Spikelee\_61 (F1), Squint\_104 (J), StAnnes\_53 (F1), SuperGrey\_58 (F1), Superphikiman\_103 (J), TChen\_54 (F4), Taj\_58 (F1), ThreeRngTarjay\_107 (J), Topiatin\_60 (F1), Tweety\_54 (F1), Wachhund\_56 (F1),

Wee\_57 (F1), WillSterrel\_55 (F1), XFactor\_52 (F1), Zapner\_67 (F2), Zelink\_106 (J),

Start 35:

- Found in 119 of 119 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 1 of 99
- Called 4.2% of time when present
- Phage (with cluster) where this start called: Blexus\_52 (F1), Nichirin\_59 (F1), Oksu\_58 (F1), SilverChicken\_64 (F2), Tchotchke\_55 (F1),

### **Summary by clusters:**

There are 8 clusters represented in this pham: F1, F2, F3, F4, F, F8, J, A1,

Info for manual annotations of cluster A1:

- Start number 32 was manually annotated 3 times for cluster A1.

Info for manual annotations of cluster F1:

- Start number 33 was manually annotated 64 times for cluster F1.
- Start number 35 was manually annotated 1 time for cluster F1.

Info for manual annotations of cluster F2:

- Start number 33 was manually annotated 4 times for cluster F2.

Info for manual annotations of cluster F3:

- Start number 28 was manually annotated 1 time for cluster F3.

Info for manual annotations of cluster F4:

- Start number 33 was manually annotated 2 times for cluster F4.

Info for manual annotations of cluster J:

- Start number 33 was manually annotated 24 times for cluster J.

### **Gene Information:**

Gene: Akhila\_46 Start: 33953, Stop: 34786, Start Num: 33

Candidate Starts for Akhila\_46:

(30, 33872), (Start: 33 @33953 has 94 MA's), (Start: 35 @34037 has 1 MA's), (40, 34118), (41, 34124), (44, 34178), (47, 34193), (53, 34244), (55, 34259), (61, 34313), (63, 34337), (66, 34364), (67, 34481), (69, 34622),

Gene: AlpineSix\_59 Start: 40040, Stop: 40867, Start Num: 33

Candidate Starts for AlpineSix\_59:

(Start: 33 @40040 has 94 MA's), (Start: 35 @40124 has 1 MA's), (40, 40205), (41, 40211), (44, 40265), (45, 40268), (47, 40280), (50, 40322), (53, 40331), (55, 40346), (63, 40424),

Gene: Ariel\_106 Start: 58305, Stop: 59027, Start Num: 33

Candidate Starts for Ariel\_106:

(Start: 33 @58305 has 94 MA's), (Start: 35 @58389 has 1 MA's), (36, 58395), (38, 58422), (40, 58470), (42, 58491), (43, 58512), (44, 58530), (46, 58539), (50, 58587), (51, 58590), (52, 58593), (54, 58602),

(57, 58626), (59, 58638), (62, 58680), (63, 58689), (65, 58713), (72, 59016),

Gene: Aubs\_55 Start: 38287, Stop: 39039, Start Num: 33

Candidate Starts for Aubs\_55:

(29, 38206), (Start: 33 @38287 has 94 MA's), (Start: 35 @38371 has 1 MA's), (40, 38452), (41, 38458), (44, 38512), (47, 38527), (53, 38578), (55, 38593), (61, 38647), (63, 38671), (66, 38698),

Gene: Avani\_62 Start: 38318, Stop: 38998, Start Num: 33

Candidate Starts for Avani\_62:

(Start: 33 @38318 has 94 MA's), (Start: 35 @38402 has 1 MA's), (40, 38483), (41, 38489), (44, 38543), (45, 38546), (46, 38552), (47, 38558), (50, 38600), (53, 38609), (55, 38624), (56, 38627), (63, 38702), (64, 38720), (68, 38834),

Gene: Bagrid\_111 Start: 62698, Stop: 63411, Start Num: 33

Candidate Starts for Bagrid\_111:

(Start: 33 @62698 has 94 MA's), (Start: 35 @62782 has 1 MA's), (36, 62788), (38, 62815), (40, 62863), (42, 62884), (43, 62905), (44, 62923), (46, 62932), (50, 62980), (51, 62983), (52, 62986), (54, 62995), (57, 63019), (59, 63031), (62, 63073), (63, 63082), (65, 63106), (72, 63403),

Gene: Batiatus\_52 Start: 37730, Stop: 38563, Start Num: 33

Candidate Starts for Batiatus\_52:

(15, 37391), (19, 37427), (21, 37433), (25, 37571), (Start: 28 @37616 has 1 MA's), (Start: 33 @37730 has 94 MA's), (Start: 35 @37814 has 1 MA's), (40, 37895), (41, 37901), (44, 37955), (47, 37970), (53, 38021), (55, 38036), (61, 38090), (63, 38114), (66, 38141), (69, 38399),

Gene: Beem\_112 Start: 63863, Stop: 64612, Start Num: 33

Candidate Starts for Beem\_112:

(Start: 33 @63863 has 94 MA's), (Start: 35 @63947 has 1 MA's), (36, 63953), (38, 63980), (40, 64028), (42, 64049), (43, 64070), (44, 64088), (46, 64097), (50, 64145), (51, 64148), (52, 64151), (54, 64160), (57, 64184), (59, 64196), (62, 64238), (63, 64247), (65, 64271), (72, 64601),

Gene: Blarby\_66 Start: 39313, Stop: 40095, Start Num: 33

Candidate Starts for Blarby\_66:

(Start: 33 @39313 has 94 MA's), (Start: 35 @39397 has 1 MA's), (36, 39403), (40, 39478), (41, 39484), (44, 39538), (47, 39553), (53, 39604), (55, 39619), (61, 39673), (63, 39697), (66, 39724),

Gene: Blexus\_52 Start: 37963, Stop: 38715, Start Num: 35

Candidate Starts for Blexus\_52:

(29, 37798), (Start: 33 @37879 has 94 MA's), (Start: 35 @37963 has 1 MA's), (40, 38044), (41, 38050), (44, 38104), (47, 38119), (53, 38170), (55, 38185), (63, 38263), (64, 38281),

Gene: BlueCrab\_53 Start: 38090, Stop: 38827, Start Num: 33

Candidate Starts for BlueCrab\_53:

(Start: 33 @38090 has 94 MA's), (Start: 35 @38174 has 1 MA's), (40, 38255), (41, 38261), (44, 38315), (47, 38330), (53, 38381), (55, 38396), (61, 38450), (63, 38474), (66, 38501),

Gene: Bobby\_79 Start: 52969, Stop: 52163, Start Num: 33

Candidate Starts for Bobby\_79:

(Start: 33 @52969 has 94 MA's), (Start: 35 @52885 has 1 MA's), (38, 52852), (39, 52807), (40, 52804), (43, 52762), (44, 52744), (48, 52720), (56, 52660), (59, 52636), (60, 52609), (62, 52591), (63, 52582), (70, 52237),

Gene: Bobi\_57 Start: 39144, Stop: 39935, Start Num: 33

Candidate Starts for Bobi\_57:

(30, 39063), (Start: 33 @39144 has 94 MA's), (Start: 35 @39228 has 1 MA's), (40, 39309), (41, 39315), (44, 39369), (47, 39384), (53, 39435), (55, 39450), (61, 39504), (63, 39528), (66, 39555), (73, 39903), (74, 39909),

Gene: Boomer\_59 Start: 39890, Stop: 40651, Start Num: 33

Candidate Starts for Boomer\_59:

(Start: 33 @39890 has 94 MA's), (Start: 35 @39974 has 1 MA's), (36, 39980), (40, 40055), (41, 40061), (44, 40115), (46, 40124), (47, 40130), (53, 40181), (55, 40196), (56, 40199), (61, 40250), (63, 40274), (66, 40301),

Gene: BronnyJames\_104 Start: 58779, Stop: 59513, Start Num: 33

Candidate Starts for BronnyJames\_104:

(Start: 33 @58779 has 94 MA's), (Start: 35 @58863 has 1 MA's), (36, 58869), (38, 58896), (40, 58944), (42, 58965), (43, 58986), (44, 59004), (46, 59013), (50, 59061), (51, 59064), (52, 59067), (54, 59076), (57, 59100), (59, 59112), (62, 59154), (63, 59163), (65, 59187), (72, 59502),

Gene: Brushbloom\_57 Start: 38889, Stop: 39671, Start Num: 33

Candidate Starts for Brushbloom\_57:

(14, 38532), (17, 38580), (18, 38583), (20, 38589), (24, 38676), (25, 38730), (Start: 28 @38775 has 1 MA's), (Start: 33 @38889 has 94 MA's), (Start: 35 @38973 has 1 MA's), (40, 39054), (41, 39060), (44, 39114), (47, 39129), (53, 39180), (55, 39195), (61, 39249), (63, 39273), (66, 39300),

Gene: CaptainTrips\_51 Start: 37041, Stop: 37829, Start Num: 33

Candidate Starts for CaptainTrips\_51:

(29, 36960), (Start: 33 @37041 has 94 MA's), (Start: 35 @37125 has 1 MA's), (36, 37131), (40, 37206), (41, 37212), (44, 37266), (47, 37281), (53, 37332), (55, 37347), (61, 37401), (63, 37425), (66, 37452),

Gene: Che8\_57 Start: 39191, Stop: 40054, Start Num: 33

Candidate Starts for Che8\_57:

(Start: 33 @39191 has 94 MA's), (Start: 35 @39275 has 1 MA's), (36, 39281), (40, 39356), (41, 39362), (44, 39416), (45, 39419), (46, 39425), (47, 39431), (53, 39482), (55, 39497), (56, 39500), (63, 39575),

Gene: Constella\_109 Start: 63673, Stop: 64416, Start Num: 33

Candidate Starts for Constella\_109:

(Start: 33 @63673 has 94 MA's), (Start: 35 @63757 has 1 MA's), (40, 63838), (41, 63844), (44, 63898), (45, 63901), (47, 63913), (50, 63955), (53, 63964), (55, 63979), (63, 64057),

Gene: Courthouse\_101 Start: 57905, Stop: 58627, Start Num: 33

Candidate Starts for Courthouse\_101:

(Start: 33 @57905 has 94 MA's), (Start: 35 @57989 has 1 MA's), (36, 57995), (38, 58022), (40, 58070), (42, 58091), (43, 58112), (44, 58130), (46, 58139), (50, 58187), (51, 58190), (52, 58193), (54, 58202), (57, 58226), (59, 58238), (62, 58280), (63, 58289), (65, 58313), (72, 58616),

Gene: Dallas\_111 Start: 63567, Stop: 64280, Start Num: 33

Candidate Starts for Dallas\_111:

(Start: 33 @63567 has 94 MA's), (Start: 35 @63651 has 1 MA's), (36, 63657), (38, 63684), (40, 63732), (42, 63753), (43, 63774), (44, 63792), (46, 63801), (50, 63849), (51, 63852), (52, 63855), (54, 63864), (57, 63888), (59, 63900), (62, 63942), (63, 63951), (65, 63975), (72, 64272),

Gene: DeadP\_60 Start: 39907, Stop: 40911, Start Num: 33

Candidate Starts for DeadP\_60:

(26, 39748), (Start: 28 @39793 has 1 MA's), (Start: 33 @39907 has 94 MA's), (Start: 35 @39991 has 1 MA's), (40, 40072), (41, 40078), (44, 40132), (47, 40147), (53, 40198), (55, 40213), (61, 40267), (63, 40291), (66, 40318),

Gene: DmpstrDiver\_111 Start: 62987, Stop: 63700, Start Num: 33

Candidate Starts for DmpstrDiver\_111:

(Start: 33 @62987 has 94 MA's), (Start: 35 @63071 has 1 MA's), (36, 63077), (38, 63104), (40, 63152), (42, 63173), (43, 63194), (44, 63212), (46, 63221), (50, 63269), (51, 63272), (52, 63275), (54, 63284), (57, 63308), (59, 63320), (62, 63362), (63, 63371), (65, 63395), (72, 63692),

Gene: Donkeykong\_58 Start: 40479, Stop: 41291, Start Num: 33

Candidate Starts for Donkeykong\_58:

(Start: 33 @40479 has 94 MA's), (Start: 35 @40563 has 1 MA's), (40, 40644), (41, 40650), (44, 40704), (47, 40719), (53, 40770), (55, 40785), (61, 40839), (63, 40863), (66, 40890),

Gene: Doomslug\_63 Start: 38053, Stop: 38853, Start Num: 33

Candidate Starts for Doomslug\_63:

(Start: 33 @38053 has 94 MA's), (Start: 35 @38137 has 1 MA's), (40, 38218), (41, 38224), (44, 38278), (47, 38293), (53, 38344), (55, 38359), (61, 38413), (63, 38437), (66, 38464),

Gene: Ejimix\_104 Start: 63590, Stop: 64306, Start Num: 33

Candidate Starts for Ejimix\_104:

(Start: 33 @63590 has 94 MA's), (Start: 35 @63674 has 1 MA's), (36, 63680), (38, 63707), (40, 63755), (42, 63776), (43, 63797), (44, 63815), (46, 63824), (50, 63872), (51, 63875), (52, 63878), (54, 63887), (57, 63911), (59, 63923), (62, 63965), (63, 63974), (65, 63998), (72, 64295),

Gene: EleanorGeorge\_53 Start: 37536, Stop: 38372, Start Num: 33

Candidate Starts for EleanorGeorge\_53:

(Start: 33 @37536 has 94 MA's), (Start: 35 @37620 has 1 MA's), (40, 37701), (41, 37707), (44, 37761), (46, 37770), (47, 37776), (53, 37827), (55, 37842), (59, 37869), (61, 37896), (63, 37920),

Gene: EmiMonkey\_52 Start: 39203, Stop: 39964, Start Num: 33

Candidate Starts for EmiMonkey\_52:

(Start: 33 @39203 has 94 MA's), (Start: 35 @39287 has 1 MA's), (36, 39293), (40, 39368), (41, 39374), (44, 39428), (46, 39437), (47, 39443), (53, 39494), (55, 39509), (56, 39512), (61, 39563), (63, 39587), (66, 39614),

Gene: Emma\_54 Start: 37254, Stop: 37994, Start Num: 33

Candidate Starts for Emma\_54:

(2, 36753), (5, 36789), (6, 36795), (11, 36855), (12, 36885), (22, 36996), (25, 37095), (Start: 28 @37140 has 1 MA's), (Start: 33 @37254 has 94 MA's), (Start: 35 @37338 has 1 MA's), (40, 37419), (41, 37425), (44, 37479), (47, 37494), (53, 37545), (55, 37560), (61, 37614), (63, 37638), (66, 37665), (73, 37962), (74, 37968),

Gene: Enby\_55 Start: 36476, Stop: 37276, Start Num: 33

Candidate Starts for Enby\_55:

(29, 36395), (Start: 33 @36476 has 94 MA's), (Start: 35 @36560 has 1 MA's), (36, 36566), (40, 36641), (41, 36647), (44, 36701), (47, 36716), (53, 36767), (55, 36782), (61, 36836), (63, 36860), (66, 36887),

Gene: EricMillard\_103 Start: 62627, Stop: 63340, Start Num: 33

Candidate Starts for EricMillard\_103:

(Start: 33 @62627 has 94 MA's), (Start: 35 @62711 has 1 MA's), (36, 62717), (38, 62744), (40, 62792), (42, 62813), (43, 62834), (44, 62852), (46, 62861), (50, 62909), (51, 62912), (52, 62915), (54, 62924),

(57, 62948), (59, 62960), (62, 63002), (63, 63011), (65, 63035), (72, 63332),

Gene: Estave1\_57 Start: 38696, Stop: 39457, Start Num: 33

Candidate Starts for Estave1\_57:

(1, 38144), (7, 38249), (8, 38252), (12, 38327), (22, 38438), (25, 38537), (Start: 28 @38582 has 1 MA's), (Start: 33 @38696 has 94 MA's), (Start: 35 @38780 has 1 MA's), (40, 38861), (41, 38867), (44, 38921), (46, 38930), (47, 38936), (53, 38987), (55, 39002), (56, 39005), (61, 39056), (63, 39080), (66, 39107),

Gene: Filuzino\_52 Start: 36777, Stop: 37517, Start Num: 33

Candidate Starts for Filuzino\_52:

(15, 36438), (19, 36474), (21, 36480), (22, 36519), (25, 36618), (Start: 28 @36663 has 1 MA's), (Start: 33 @36777 has 94 MA's), (Start: 35 @36861 has 1 MA's), (40, 36942), (41, 36948), (44, 37002), (47, 37017), (53, 37068), (55, 37083), (61, 37137), (63, 37161), (66, 37188),

Gene: Firehouse51\_55 Start: 40981, Stop: 41853, Start Num: 33

Candidate Starts for Firehouse51\_55:

(29, 40900), (Start: 33 @40981 has 94 MA's), (Start: 35 @41065 has 1 MA's), (40, 41146), (41, 41152), (44, 41206), (47, 41221), (49, 41236), (50, 41263), (53, 41272), (55, 41287), (63, 41365), (64, 41383),

Gene: Flathead\_54 Start: 38269, Stop: 38985, Start Num: 33

Candidate Starts for Flathead\_54:

(25, 38110), (Start: 28 @38155 has 1 MA's), (Start: 33 @38269 has 94 MA's), (Start: 35 @38353 has 1 MA's), (40, 38434), (41, 38440), (44, 38494), (47, 38509), (53, 38560), (55, 38575), (61, 38629), (63, 38653), (66, 38680),

Gene: Gonephishing\_100 Start: 57462, Stop: 58205, Start Num: 33

Candidate Starts for Gonephishing\_100:

(Start: 33 @57462 has 94 MA's), (Start: 35 @57546 has 1 MA's), (36, 57552), (38, 57579), (40, 57627), (42, 57648), (43, 57669), (44, 57687), (46, 57696), (50, 57744), (51, 57747), (52, 57750), (54, 57759), (57, 57783), (59, 57795), (62, 57837), (65, 57870), (72, 58197),

Gene: Guppsters\_55 Start: 37293, Stop: 38045, Start Num: 33

Candidate Starts for Guppsters\_55:

(29, 37212), (Start: 33 @37293 has 94 MA's), (Start: 35 @37377 has 1 MA's), (40, 37458), (41, 37464), (44, 37518), (47, 37533), (53, 37584), (55, 37599), (61, 37653), (63, 37677), (66, 37704),

Gene: Hades\_55 Start: 38378, Stop: 39154, Start Num: 33

Candidate Starts for Hades\_55:

(Start: 33 @38378 has 94 MA's), (Start: 35 @38462 has 1 MA's), (36, 38468), (40, 38543), (41, 38549), (44, 38603), (47, 38618), (53, 38669), (55, 38684), (61, 38738), (63, 38762), (66, 38789),

Gene: Halley\_112 Start: 63864, Stop: 64622, Start Num: 33

Candidate Starts for Halley\_112:

(Start: 33 @63864 has 94 MA's), (Start: 35 @63948 has 1 MA's), (36, 63954), (40, 64029), (42, 64050), (43, 64071), (44, 64089), (46, 64098), (50, 64146), (51, 64149), (52, 64152), (54, 64161), (57, 64185), (59, 64197), (62, 64239), (63, 64248), (65, 64272), (72, 64611),

Gene: Harley\_56 Start: 38076, Stop: 38933, Start Num: 33

Candidate Starts for Harley\_56:

(30, 37995), (Start: 33 @38076 has 94 MA's), (Start: 35 @38160 has 1 MA's), (40, 38241), (41, 38247), (44, 38301), (47, 38316), (53, 38367), (55, 38382), (61, 38436), (63, 38460), (66, 38487), (69, 38769),

Gene: Hegedechwinu\_54 Start: 36679, Stop: 37368, Start Num: 33

Candidate Starts for Hegedechwinu\_54:

(25, 36520), (Start: 28 @36565 has 1 MA's), (Start: 33 @36679 has 94 MA's), (Start: 35 @36763 has 1 MA's), (40, 36844), (41, 36850), (44, 36904), (47, 36919), (53, 36970), (55, 36985), (61, 37039), (63, 37063), (66, 37090),

Gene: Hidrated\_73 Start: 52054, Stop: 51440, Start Num: 33

Candidate Starts for Hidrated\_73:

(Start: 33 @52054 has 94 MA's), (Start: 35 @51970 has 1 MA's), (38, 51937), (39, 51892), (40, 51889), (43, 51847), (44, 51829), (48, 51805), (56, 51745), (59, 51721), (60, 51694), (62, 51676), (63, 51667), (70, 51514),

Gene: Hope4ever\_71 Start: 44113, Stop: 43361, Start Num: 32

Candidate Starts for Hope4ever\_71:

(Start: 32 @44113 has 3 MA's), (Start: 33 @44101 has 94 MA's), (Start: 35 @44017 has 1 MA's), (40, 43936), (41, 43930), (44, 43876), (45, 43873), (47, 43861), (53, 43810), (55, 43795), (61, 43741), (63, 43717), (66, 43690),

Gene: Hughesyang\_109 Start: 63518, Stop: 64231, Start Num: 33

Candidate Starts for Hughesyang\_109:

(Start: 33 @63518 has 94 MA's), (Start: 35 @63602 has 1 MA's), (36, 63608), (38, 63635), (40, 63683), (42, 63704), (43, 63725), (44, 63743), (46, 63752), (50, 63800), (51, 63803), (52, 63806), (54, 63815), (57, 63839), (59, 63851), (62, 63893), (63, 63902), (65, 63926), (72, 64223),

Gene: lbhubesi\_54 Start: 37585, Stop: 38349, Start Num: 33

Candidate Starts for lbhubesi\_54:

(29, 37504), (Start: 33 @37585 has 94 MA's), (Start: 35 @37669 has 1 MA's), (40, 37750), (41, 37756), (44, 37810), (47, 37825), (53, 37876), (55, 37891), (61, 37945), (63, 37969), (66, 37996),

Gene: Inventum\_49 Start: 37068, Stop: 37850, Start Num: 33

Candidate Starts for Inventum\_49:

(Start: 33 @37068 has 94 MA's), (Start: 35 @37152 has 1 MA's), (36, 37158), (40, 37233), (41, 37239), (44, 37293), (47, 37308), (53, 37359), (55, 37374), (61, 37428), (63, 37452), (66, 37479),

Gene: IrishSherpFalk\_55 Start: 39198, Stop: 40010, Start Num: 33

Candidate Starts for IrishSherpFalk\_55:

(31, 39135), (Start: 33 @39198 has 94 MA's), (Start: 35 @39282 has 1 MA's), (40, 39363), (41, 39369), (44, 39423), (47, 39438), (53, 39489), (55, 39504), (61, 39558), (63, 39582), (66, 39609),

Gene: Jabbawokkie\_68 Start: 39326, Stop: 40015, Start Num: 33

Candidate Starts for Jabbawokkie\_68:

(Start: 33 @39326 has 94 MA's), (Start: 35 @39410 has 1 MA's), (40, 39491), (41, 39497), (44, 39551), (47, 39566), (53, 39617), (55, 39632), (61, 39686), (63, 39710), (66, 39737),

Gene: JalFarm20\_66 Start: 41299, Stop: 42081, Start Num: 33

Candidate Starts for JalFarm20\_66:

(25, 41140), (Start: 28 @41185 has 1 MA's), (Start: 33 @41299 has 94 MA's), (Start: 35 @41383 has 1 MA's), (40, 41464), (41, 41470), (44, 41524), (47, 41539), (53, 41590), (55, 41605), (61, 41659), (63, 41683), (66, 41710),

Gene: Jinglebell\_59 Start: 40039, Stop: 40866, Start Num: 33

Candidate Starts for Jinglebell\_59:

(Start: 33 @40039 has 94 MA's), (Start: 35 @40123 has 1 MA's), (40, 40204), (41, 40210), (44, 40264), (45, 40267), (47, 40279), (50, 40321), (53, 40330), (55, 40345), (63, 40423),

Gene: Juice456\_55 Start: 39438, Stop: 40220, Start Num: 33

Candidate Starts for Juice456\_55:

(Start: 33 @39438 has 94 MA's), (Start: 35 @39522 has 1 MA's), (40, 39603), (41, 39609), (44, 39663), (47, 39678), (53, 39729), (55, 39744), (61, 39798), (63, 39822), (66, 39849),

Gene: JuicyJay\_107 Start: 64998, Stop: 65747, Start Num: 33

Candidate Starts for JuicyJay\_107:

(Start: 33 @64998 has 94 MA's), (Start: 35 @65082 has 1 MA's), (36, 65088), (38, 65115), (40, 65163), (42, 65184), (43, 65205), (44, 65223), (46, 65232), (50, 65280), (51, 65283), (52, 65286), (54, 65295), (57, 65319), (59, 65331), (62, 65373), (63, 65382), (65, 65406), (72, 65736),

Gene: Juniper1\_52 Start: 37409, Stop: 38161, Start Num: 33

Candidate Starts for Juniper1\_52:

(27, 37280), (Start: 33 @37409 has 94 MA's), (Start: 35 @37493 has 1 MA's), (40, 37574), (41, 37580), (44, 37634), (46, 37643), (47, 37649), (53, 37700), (55, 37715), (61, 37769), (63, 37793), (66, 37820),

Gene: Kalah2\_103 Start: 62853, Stop: 63566, Start Num: 33

Candidate Starts for Kalah2\_103:

(Start: 33 @62853 has 94 MA's), (Start: 35 @62937 has 1 MA's), (36, 62943), (38, 62970), (40, 63018), (42, 63039), (43, 63060), (44, 63078), (46, 63087), (50, 63135), (51, 63138), (52, 63141), (54, 63150), (57, 63174), (59, 63186), (62, 63228), (63, 63237), (65, 63261), (72, 63558),

Gene: KashFlow\_103 Start: 58703, Stop: 59503, Start Num: 33

Candidate Starts for KashFlow\_103:

(Start: 33 @58703 has 94 MA's), (Start: 35 @58787 has 1 MA's), (36, 58793), (38, 58820), (40, 58868), (42, 58889), (43, 58910), (44, 58928), (46, 58937), (50, 58985), (51, 58988), (52, 58991), (54, 59000), (57, 59024), (59, 59036), (62, 59078), (63, 59087), (65, 59111), (72, 59492),

Gene: Kersh\_56 Start: 39838, Stop: 40602, Start Num: 33

Candidate Starts for Kersh\_56:

(30, 39757), (Start: 33 @39838 has 94 MA's), (Start: 35 @39922 has 1 MA's), (36, 39928), (40, 40003), (41, 40009), (44, 40063), (46, 40072), (47, 40078), (53, 40129), (55, 40144), (59, 40171), (61, 40198),

Gene: KristaRAM\_57 Start: 40065, Stop: 40805, Start Num: 33

Candidate Starts for KristaRAM\_57:

(29, 39984), (Start: 33 @40065 has 94 MA's), (Start: 35 @40149 has 1 MA's), (40, 40230), (41, 40236), (44, 40290), (47, 40305), (53, 40356), (55, 40371), (61, 40425), (63, 40449), (66, 40476),

Gene: LittleE\_110 Start: 61999, Stop: 62772, Start Num: 33

Candidate Starts for LittleE\_110:

(Start: 33 @61999 has 94 MA's), (Start: 35 @62083 has 1 MA's), (36, 62089), (38, 62116), (40, 62164), (42, 62185), (43, 62206), (44, 62224), (46, 62233), (50, 62281), (51, 62284), (52, 62287), (54, 62296), (57, 62320), (59, 62332), (62, 62374), (63, 62383), (65, 62407), (72, 62764),

Gene: Llama\_59 Start: 40037, Stop: 40720, Start Num: 33

Candidate Starts for Llama\_59:

(Start: 33 @40037 has 94 MA's), (Start: 35 @40121 has 1 MA's), (40, 40202), (41, 40208), (44, 40262), (45, 40265), (47, 40277), (50, 40319), (53, 40328), (55, 40343), (63, 40421),

Gene: Lucky2013\_103 Start: 58322, Stop: 59068, Start Num: 33

Candidate Starts for Lucky2013\_103:

(Start: 33 @58322 has 94 MA's), (Start: 35 @58406 has 1 MA's), (36, 58412), (38, 58439), (40, 58487), (42, 58508), (43, 58529), (44, 58547), (46, 58556), (50, 58604), (51, 58607), (52, 58610), (54, 58619), (57, 58643), (59, 58655), (62, 58697), (63, 58706), (65, 58730), (72, 59057),

Gene: LunaStella\_52 Start: 36750, Stop: 37514, Start Num: 33

Candidate Starts for LunaStella\_52:

(29, 36669), (Start: 33 @36750 has 94 MA's), (Start: 35 @36834 has 1 MA's), (40, 36915), (41, 36921), (44, 36975), (47, 36990), (49, 37005), (50, 37032), (53, 37041), (55, 37056), (63, 37134), (64, 37152),

Gene: Madiba\_52 Start: 36503, Stop: 37327, Start Num: 33

Candidate Starts for Madiba\_52:

(Start: 33 @36503 has 94 MA's), (Start: 35 @36587 has 1 MA's), (36, 36593), (40, 36668), (41, 36674), (44, 36728), (45, 36731), (46, 36737), (47, 36743), (53, 36794), (55, 36809), (58, 36833), (64, 36905), (71, 37307),

Gene: Marleymoo\_71 Start: 50759, Stop: 49965, Start Num: 33

Candidate Starts for Marleymoo\_71:

(Start: 33 @50759 has 94 MA's), (Start: 35 @50675 has 1 MA's), (38, 50642), (39, 50597), (40, 50594), (43, 50552), (44, 50534), (48, 50510), (56, 50450), (59, 50426), (60, 50399), (62, 50381), (63, 50372), (70, 50039),

Gene: Melissauren88\_52 Start: 37249, Stop: 38013, Start Num: 33

Candidate Starts for Melissauren88\_52:

(25, 37090), (Start: 28 @37135 has 1 MA's), (Start: 33 @37249 has 94 MA's), (Start: 35 @37333 has 1 MA's), (40, 37414), (41, 37420), (44, 37474), (47, 37489), (53, 37540), (55, 37555), (61, 37609), (63, 37633), (66, 37660),

Gene: MiaZeal\_106 Start: 58977, Stop: 59699, Start Num: 33

Candidate Starts for MiaZeal\_106:

(Start: 33 @58977 has 94 MA's), (Start: 35 @59061 has 1 MA's), (36, 59067), (38, 59094), (40, 59142), (42, 59163), (43, 59184), (44, 59202), (46, 59211), (50, 59259), (51, 59262), (52, 59265), (54, 59274), (57, 59298), (59, 59310), (62, 59352), (63, 59361), (65, 59385), (72, 59688),

Gene: Michley\_72 Start: 44145, Stop: 43537, Start Num: 32

Candidate Starts for Michley\_72:

(Start: 32 @44145 has 3 MA's), (Start: 33 @44133 has 94 MA's), (34, 44061), (Start: 35 @44049 has 1 MA's), (40, 43968), (41, 43962), (44, 43908), (45, 43905), (47, 43893), (53, 43842), (55, 43827), (61, 43773), (63, 43749), (66, 43722),

Gene: MilanaBonita\_45 Start: 33953, Stop: 34786, Start Num: 33

Candidate Starts for MilanaBonita\_45:

(30, 33872), (Start: 33 @33953 has 94 MA's), (Start: 35 @34037 has 1 MA's), (40, 34118), (41, 34124), (44, 34178), (47, 34193), (53, 34244), (55, 34259), (61, 34313), (63, 34337), (66, 34364), (67, 34481), (69, 34622),

Gene: MilleniumForce\_58 Start: 40147, Stop: 40875, Start Num: 33

Candidate Starts for MilleniumForce\_58:

(30, 40066), (Start: 33 @40147 has 94 MA's), (Start: 35 @40231 has 1 MA's), (40, 40312), (41, 40318), (44, 40372), (47, 40387), (53, 40438), (55, 40453), (61, 40507), (63, 40531), (66, 40558),

Gene: MinionDave\_53 Start: 37816, Stop: 38604, Start Num: 33

Candidate Starts for MinionDave\_53:

(29, 37735), (Start: 33 @37816 has 94 MA's), (Start: 35 @37900 has 1 MA's), (36, 37906), (40, 37981), (41, 37987), (44, 38041), (47, 38056), (53, 38107), (55, 38122), (61, 38176), (63, 38200), (66, 38227),

Gene: Modragons\_58 Start: 39883, Stop: 40710, Start Num: 33

Candidate Starts for Modragons\_58:

(Start: 33 @39883 has 94 MA's), (Start: 35 @39967 has 1 MA's), (40, 40048), (41, 40054), (44, 40108), (45, 40111), (47, 40123), (50, 40165), (53, 40174), (55, 40189), (63, 40267),

Gene: Moonbeam\_50 Start: 37207, Stop: 37923, Start Num: 33

Candidate Starts for Moonbeam\_50:

(2, 36706), (5, 36742), (6, 36748), (11, 36808), (12, 36838), (22, 36949), (25, 37048), (Start: 28 @37093 has 1 MA's), (Start: 33 @37207 has 94 MA's), (Start: 35 @37291 has 1 MA's), (40, 37372), (41, 37378), (44, 37432), (47, 37447), (53, 37498), (55, 37513), (61, 37567), (63, 37591), (66, 37618), (73, 37891), (74, 37897),

Gene: Ms6\_49 Start: 33004, Stop: 33744, Start Num: 33

Candidate Starts for Ms6\_49:

(8, 32560), (12, 32635), (22, 32746), (25, 32845), (Start: 28 @32890 has 1 MA's), (Start: 33 @33004 has 94 MA's), (Start: 35 @33088 has 1 MA's), (40, 33169), (41, 33175), (44, 33229), (47, 33244), (53, 33295), (55, 33310), (61, 33364), (63, 33388), (66, 33415),

Gene: Mutaforma13\_58 Start: 40291, Stop: 41163, Start Num: 33

Candidate Starts for Mutaforma13\_58:

(29, 40210), (Start: 33 @40291 has 94 MA's), (Start: 35 @40375 has 1 MA's), (40, 40456), (41, 40462), (44, 40516), (47, 40531), (49, 40546), (50, 40573), (53, 40582), (55, 40597), (63, 40675), (64, 40693),

Gene: Nekros\_109 Start: 61935, Stop: 62624, Start Num: 33

Candidate Starts for Nekros\_109:

(Start: 33 @61935 has 94 MA's), (Start: 35 @62019 has 1 MA's), (36, 62025), (38, 62052), (40, 62100), (42, 62121), (43, 62142), (44, 62160), (46, 62169), (50, 62217), (51, 62220), (52, 62223), (54, 62232), (57, 62256), (59, 62268), (62, 62310), (63, 62319), (65, 62343), (72, 62613),

Gene: Nerujay\_74 Start: 45950, Stop: 45162, Start Num: 32

Candidate Starts for Nerujay\_74:

(Start: 32 @45950 has 3 MA's), (Start: 33 @45938 has 94 MA's), (Start: 35 @45854 has 1 MA's), (40, 45773), (41, 45767), (44, 45713), (47, 45698), (53, 45647), (55, 45632), (56, 45629), (63, 45554), (64, 45536),

Gene: Nibley\_99 Start: 58356, Stop: 59090, Start Num: 33

Candidate Starts for Nibley\_99:

(Start: 33 @58356 has 94 MA's), (Start: 35 @58440 has 1 MA's), (36, 58446), (38, 58473), (40, 58521), (42, 58542), (43, 58563), (44, 58581), (46, 58590), (50, 58638), (51, 58641), (52, 58644), (54, 58653), (57, 58677), (59, 58689), (62, 58731), (63, 58740), (65, 58764), (72, 59079),

Gene: Nichirin\_59 Start: 39641, Stop: 40384, Start Num: 35

Candidate Starts for Nichirin\_59:

(Start: 33 @39557 has 94 MA's), (Start: 35 @39641 has 1 MA's), (40, 39722), (41, 39728), (44, 39782), (45, 39785), (47, 39797), (50, 39839), (53, 39848), (55, 39863), (63, 39941),

Gene: Ochi17\_57 Start: 39490, Stop: 40317, Start Num: 33

Candidate Starts for Ochi17\_57:

(Start: 33 @39490 has 94 MA's), (Start: 35 @39574 has 1 MA's), (40, 39655), (41, 39661), (44, 39715), (45, 39718), (47, 39730), (50, 39772), (53, 39781), (55, 39796), (63, 39874),

Gene: Odette\_112 Start: 63023, Stop: 63760, Start Num: 33

Candidate Starts for Odette\_112:

(Start: 33 @63023 has 94 MA's), (Start: 35 @63107 has 1 MA's), (36, 63113), (38, 63140), (40, 63188), (42, 63209), (43, 63230), (44, 63248), (46, 63257), (50, 63305), (51, 63308), (52, 63311), (54, 63320), (57, 63344), (59, 63356), (62, 63398), (63, 63407), (65, 63431), (72, 63752),

Gene: OfUltron\_59 Start: 40039, Stop: 40866, Start Num: 33

Candidate Starts for OfUltron\_59:

(Start: 33 @40039 has 94 MA's), (Start: 35 @40123 has 1 MA's), (40, 40204), (41, 40210), (44, 40264), (45, 40267), (47, 40279), (50, 40321), (53, 40330), (55, 40345), (63, 40423),

Gene: Okabe\_49 Start: 34186, Stop: 34926, Start Num: 33

Candidate Starts for Okabe\_49:

(23, 33952), (25, 34027), (Start: 28 @34072 has 1 MA's), (Start: 33 @34186 has 94 MA's), (Start: 35 @34270 has 1 MA's), (40, 34351), (41, 34357), (44, 34411), (47, 34426), (53, 34477), (55, 34492), (61, 34546), (63, 34570), (66, 34597),

Gene: Oksu\_58 Start: 40326, Stop: 41129, Start Num: 35

Candidate Starts for Oksu\_58:

(Start: 33 @40242 has 94 MA's), (Start: 35 @40326 has 1 MA's), (40, 40407), (41, 40413), (44, 40467), (45, 40470), (47, 40482), (50, 40524), (53, 40533), (55, 40548), (63, 40626),

Gene: Ovechkin\_53 Start: 38019, Stop: 38765, Start Num: 33

Candidate Starts for Ovechkin\_53:

(Start: 28 @37905 has 1 MA's), (Start: 33 @38019 has 94 MA's), (Start: 35 @38103 has 1 MA's), (40, 38184), (41, 38190), (44, 38244), (47, 38259), (53, 38310), (55, 38325), (61, 38379), (63, 38403), (66, 38430),

Gene: PMC\_51 Start: 38126, Stop: 38875, Start Num: 33

Candidate Starts for PMC\_51:

(Start: 33 @38126 has 94 MA's), (Start: 35 @38210 has 1 MA's), (36, 38216), (40, 38291), (41, 38297), (44, 38351), (46, 38360), (47, 38366), (53, 38417), (55, 38432), (56, 38435), (61, 38486), (63, 38510), (66, 38537),

Gene: Phanphagia\_52 Start: 38231, Stop: 39055, Start Num: 33

Candidate Starts for Phanphagia\_52:

(31, 38168), (Start: 33 @38231 has 94 MA's), (Start: 35 @38315 has 1 MA's), (40, 38396), (41, 38402), (44, 38456), (47, 38471), (53, 38522), (55, 38537), (61, 38591), (63, 38615), (66, 38642),

Gene: PhlipPhlop\_54 Start: 39203, Stop: 39964, Start Num: 33

Candidate Starts for PhlipPhlop\_54:

(Start: 33 @39203 has 94 MA's), (Start: 35 @39287 has 1 MA's), (36, 39293), (40, 39368), (41, 39374), (44, 39428), (46, 39437), (47, 39443), (53, 39494), (55, 39509), (56, 39512), (61, 39563), (63, 39587), (66, 39614),

Gene: Phoebus\_111 Start: 64829, Stop: 65542, Start Num: 33

Candidate Starts for Phoebus\_111:

(Start: 33 @64829 has 94 MA's), (Start: 35 @64913 has 1 MA's), (36, 64919), (38, 64946), (40, 64994), (42, 65015), (43, 65036), (44, 65054), (46, 65063), (50, 65111), (51, 65114), (52, 65117), (54, 65126), (57, 65150), (59, 65162), (62, 65204), (63, 65213), (65, 65237), (72, 65534),

Gene: Porcelain\_104 Start: 58977, Stop: 59696, Start Num: 33

Candidate Starts for Porcelain\_104:

(Start: 33 @58977 has 94 MA's), (Start: 35 @59061 has 1 MA's), (36, 59067), (38, 59094), (40, 59142), (42, 59163), (43, 59184), (44, 59202), (46, 59211), (50, 59259), (51, 59262), (52, 59265), (54, 59274), (57, 59298), (59, 59310), (62, 59352), (63, 59361), (65, 59385), (72, 59685),

Gene: Rearden\_100 Start: 59155, Stop: 59901, Start Num: 33

Candidate Starts for Rearden\_100:

(Start: 33 @59155 has 94 MA's), (Start: 35 @59239 has 1 MA's), (36, 59245), (38, 59272), (40, 59320), (42, 59341), (43, 59362), (44, 59380), (46, 59389), (50, 59437), (51, 59440), (52, 59443), (54, 59452), (57, 59476), (59, 59488), (62, 59530), (63, 59539), (65, 59563), (72, 59893),

Gene: Redno2\_102 Start: 59684, Stop: 60403, Start Num: 33

Candidate Starts for Redno2\_102:

(Start: 33 @59684 has 94 MA's), (Start: 35 @59768 has 1 MA's), (36, 59774), (38, 59801), (40, 59849), (42, 59870), (43, 59891), (44, 59909), (46, 59918), (50, 59966), (51, 59969), (52, 59972), (54, 59981), (57, 60005), (59, 60017), (62, 60059), (63, 60068), (65, 60092), (72, 60392),

Gene: Rockne\_55 Start: 38126, Stop: 38887, Start Num: 33

Candidate Starts for Rockne\_55:

(Start: 33 @38126 has 94 MA's), (Start: 35 @38210 has 1 MA's), (36, 38216), (40, 38291), (41, 38297), (44, 38351), (46, 38360), (47, 38366), (53, 38417), (55, 38432), (56, 38435), (61, 38486), (63, 38510), (66, 38537),

Gene: SG4\_51 Start: 36961, Stop: 37761, Start Num: 33

Candidate Starts for SG4\_51:

(29, 36880), (Start: 33 @36961 has 94 MA's), (Start: 35 @37045 has 1 MA's), (36, 37051), (40, 37126), (41, 37132), (44, 37186), (47, 37201), (53, 37252), (55, 37267), (61, 37321), (63, 37345), (66, 37372),

Gene: Sassafras\_52 Start: 37067, Stop: 37849, Start Num: 33

Candidate Starts for Sassafras\_52:

(Start: 33 @37067 has 94 MA's), (Start: 35 @37151 has 1 MA's), (36, 37157), (40, 37232), (41, 37238), (44, 37292), (47, 37307), (53, 37358), (55, 37373), (61, 37427), (63, 37451), (66, 37478),

Gene: Seabastian\_59 Start: 40040, Stop: 40867, Start Num: 33

Candidate Starts for Seabastian\_59:

(Start: 33 @40040 has 94 MA's), (Start: 35 @40124 has 1 MA's), (40, 40205), (41, 40211), (44, 40265), (45, 40268), (47, 40280), (50, 40322), (53, 40331), (55, 40346), (63, 40424),

Gene: Shaboozey\_104 Start: 58800, Stop: 59534, Start Num: 33

Candidate Starts for Shaboozey\_104:

(Start: 33 @58800 has 94 MA's), (Start: 35 @58884 has 1 MA's), (36, 58890), (38, 58917), (40, 58965), (42, 58986), (43, 59007), (44, 59025), (46, 59034), (50, 59082), (51, 59085), (52, 59088), (54, 59097), (57, 59121), (59, 59133), (62, 59175), (63, 59184), (65, 59208), (72, 59523),

Gene: Shauna1\_53 Start: 38212, Stop: 38964, Start Num: 33

Candidate Starts for Shauna1\_53:

(31, 38149), (Start: 33 @38212 has 94 MA's), (Start: 35 @38296 has 1 MA's), (40, 38377), (41, 38383), (44, 38437), (47, 38452), (53, 38503), (55, 38518), (61, 38572), (63, 38596), (66, 38623),

Gene: ShroomBoi\_56 Start: 38456, Stop: 39220, Start Num: 33

Candidate Starts for ShroomBoi\_56:

(30, 38375), (Start: 33 @38456 has 94 MA's), (Start: 35 @38540 has 1 MA's), (36, 38546), (40, 38621), (41, 38627), (44, 38681), (46, 38690), (47, 38696), (53, 38747), (55, 38762), (59, 38789), (61, 38816),

Gene: SilverChicken\_64 Start: 37866, Stop: 38510, Start Num: 35

Candidate Starts for SilverChicken\_64:

(Start: 33 @37782 has 94 MA's), (Start: 35 @37866 has 1 MA's), (37, 37875), (40, 37947), (41, 37953), (44, 38007), (47, 38022), (53, 38073), (55, 38088), (61, 38142), (63, 38166), (66, 38193), (73, 38478), (74, 38484),

Gene: SimranZ1\_54 Start: 37648, Stop: 38448, Start Num: 33

Candidate Starts for SimranZ1\_54:

(27, 37519), (Start: 33 @37648 has 94 MA's), (Start: 35 @37732 has 1 MA's), (36, 37738), (40, 37813), (41, 37819), (44, 37873), (45, 37876), (46, 37882), (47, 37888), (53, 37939), (55, 37954), (58, 37978), (64, 38050), (71, 38428),

Gene: Soul22\_58 Start: 38451, Stop: 39233, Start Num: 33

Candidate Starts for Soul22\_58:

(Start: 33 @38451 has 94 MA's), (Start: 35 @38535 has 1 MA's), (40, 38616), (41, 38622), (44, 38676), (47, 38691), (53, 38742), (55, 38757), (61, 38811), (63, 38835), (66, 38862),

Gene: Spartacus\_56 Start: 38115, Stop: 38927, Start Num: 33

Candidate Starts for Spartacus\_56:

(31, 38052), (Start: 33 @38115 has 94 MA's), (Start: 35 @38199 has 1 MA's), (40, 38280), (41, 38286), (44, 38340), (47, 38355), (53, 38406), (55, 38421), (61, 38475), (63, 38499), (66, 38526),

Gene: Spikelee\_61 Start: 39783, Stop: 40547, Start Num: 33

Candidate Starts for Spikelee\_61:

(29, 39702), (Start: 33 @39783 has 94 MA's), (Start: 35 @39867 has 1 MA's), (40, 39948), (41, 39954), (44, 40008), (45, 40011), (47, 40023), (53, 40074), (55, 40089), (63, 40167), (66, 40194),

Gene: Squint\_104 Start: 59096, Stop: 59818, Start Num: 33

Candidate Starts for Squint\_104:

(Start: 33 @59096 has 94 MA's), (Start: 35 @59180 has 1 MA's), (36, 59186), (38, 59213), (40, 59261), (42, 59282), (43, 59303), (44, 59321), (46, 59330), (50, 59378), (51, 59381), (52, 59384), (54, 59393), (57, 59417), (59, 59429), (62, 59471), (63, 59480), (65, 59504), (72, 59807),

Gene: Squirty\_57 Start: 38990, Stop: 39736, Start Num: 28

Candidate Starts for Squirty\_57:

(Start: 28 @38990 has 1 MA's), (Start: 33 @39104 has 94 MA's), (Start: 35 @39188 has 1 MA's), (40, 39269), (41, 39275), (44, 39329), (47, 39344), (53, 39395), (55, 39410), (61, 39464), (63, 39488), (66, 39515),

Gene: StAnnes\_53 Start: 38402, Stop: 39142, Start Num: 33

Candidate Starts for StAnnes\_53:

(3, 37916), (4, 37925), (9, 37970), (10, 37982), (12, 38033), (13, 38039), (22, 38144), (25, 38243), (Start: 28 @38288 has 1 MA's), (Start: 33 @38402 has 94 MA's), (Start: 35 @38486 has 1 MA's), (40, 38567), (41, 38573), (44, 38627), (47, 38642), (53, 38693), (55, 38708), (61, 38762), (63, 38786), (66, 38813),

Gene: SuperGrey\_58 Start: 39638, Stop: 40450, Start Num: 33

Candidate Starts for SuperGrey\_58:

(31, 39575), (Start: 33 @39638 has 94 MA's), (Start: 35 @39722 has 1 MA's), (40, 39803), (41, 39809), (44, 39863), (47, 39878), (53, 39929), (55, 39944), (61, 39998), (63, 40022), (66, 40049),

Gene: Superphikiman\_103 Start: 58187, Stop: 58909, Start Num: 33

Candidate Starts for Superphikiman\_103:

(Start: 33 @58187 has 94 MA's), (Start: 35 @58271 has 1 MA's), (36, 58277), (38, 58304), (40, 58352), (42, 58373), (43, 58394), (44, 58412), (46, 58421), (50, 58469), (51, 58472), (52, 58475), (54, 58484), (57, 58508), (59, 58520), (62, 58562), (63, 58571), (65, 58595), (72, 58898),

Gene: TChen\_54 Start: 38701, Stop: 39465, Start Num: 33

Candidate Starts for TChen\_54:

(29, 38620), (Start: 33 @38701 has 94 MA's), (Start: 35 @38785 has 1 MA's), (40, 38866), (41, 38872), (44, 38926), (47, 38941), (49, 38956), (50, 38983), (53, 38992), (55, 39007), (63, 39085), (64, 39103),

Gene: Taj\_58 Start: 39117, Stop: 40025, Start Num: 33

Candidate Starts for Taj\_58:

(26, 38958), (Start: 28 @39003 has 1 MA's), (Start: 33 @39117 has 94 MA's), (Start: 35 @39201 has 1 MA's), (40, 39282), (41, 39288), (44, 39342), (47, 39357), (53, 39408), (55, 39423), (61, 39477), (63, 39501), (66, 39528),

Gene: Tchotchke\_55 Start: 37581, Stop: 38369, Start Num: 35

Candidate Starts for Tchotchke\_55:

(29, 37416), (Start: 33 @37497 has 94 MA's), (Start: 35 @37581 has 1 MA's), (40, 37662), (41, 37668), (44, 37722), (47, 37737), (53, 37788), (55, 37803), (61, 37857), (63, 37881), (66, 37908),

Gene: ThreeRngTarjay\_107 Start: 64052, Stop: 64798, Start Num: 33

Candidate Starts for ThreeRngTarjay\_107:

(Start: 33 @64052 has 94 MA's), (Start: 35 @64136 has 1 MA's), (36, 64142), (38, 64169), (40, 64217), (42, 64238), (43, 64259), (44, 64277), (46, 64286), (50, 64334), (51, 64337), (52, 64340), (54, 64349), (57, 64373), (59, 64385), (62, 64427), (63, 64436), (65, 64460), (72, 64790),

Gene: Topiatin\_60 Start: 39703, Stop: 40527, Start Num: 33

Candidate Starts for Topiatin\_60:

(Start: 33 @39703 has 94 MA's), (Start: 35 @39787 has 1 MA's), (40, 39868), (41, 39874), (44, 39928), (46, 39937), (47, 39943), (53, 39994), (55, 40009), (59, 40036), (61, 40063),

Gene: Tweety\_54 Start: 38644, Stop: 39768, Start Num: 33

Candidate Starts for Tweety\_54:

(26, 38485), (Start: 28 @38530 has 1 MA's), (Start: 33 @38644 has 94 MA's), (Start: 35 @38728 has 1 MA's), (40, 38809), (41, 38815), (44, 38869), (47, 38884), (53, 38935), (55, 38950), (61, 39004), (63, 39028), (66, 39055),

Gene: Wachhund\_56 Start: 37784, Stop: 38566, Start Num: 33

Candidate Starts for Wachhund\_56:

(16, 37469), (22, 37526), (25, 37625), (Start: 28 @37670 has 1 MA's), (Start: 33 @37784 has 94 MA's), (Start: 35 @37868 has 1 MA's), (40, 37949), (41, 37955), (44, 38009), (47, 38024), (53, 38075), (55, 38090), (61, 38144), (63, 38168), (66, 38195),

Gene: Wee\_57 Start: 39390, Stop: 40094, Start Num: 33

Candidate Starts for Wee\_57:

(Start: 33 @39390 has 94 MA's), (Start: 35 @39474 has 1 MA's), (40, 39555), (41, 39561), (44, 39615), (47, 39630), (53, 39681), (55, 39696), (61, 39750), (63, 39774), (66, 39801),

Gene: WillSterrel\_55 Start: 39231, Stop: 40043, Start Num: 33

Candidate Starts for WillSterrel\_55:

(31, 39168), (Start: 33 @39231 has 94 MA's), (Start: 35 @39315 has 1 MA's), (40, 39396), (41, 39402), (44, 39456), (47, 39471), (53, 39522), (55, 39537), (61, 39591), (63, 39615), (66, 39642),

Gene: XFactor\_52 Start: 36735, Stop: 37475, Start Num: 33

Candidate Starts for XFactor\_52:

(30, 36654), (Start: 33 @36735 has 94 MA's), (Start: 35 @36819 has 1 MA's), (40, 36900), (41, 36906), (44, 36960), (47, 36975), (53, 37026), (55, 37041), (61, 37095), (63, 37119), (66, 37146),

Gene: Zapner\_67 Start: 39327, Stop: 40109, Start Num: 33

Candidate Starts for Zapner\_67:

(Start: 33 @39327 has 94 MA's), (Start: 35 @39411 has 1 MA's), (40, 39492), (41, 39498), (44, 39552), (47, 39567), (53, 39618), (55, 39633), (61, 39687), (63, 39711), (66, 39738),

Gene: Zelink\_106 Start: 64032, Stop: 64745, Start Num: 33

Candidate Starts for Zelink\_106:

(Start: 33 @64032 has 94 MA's), (Start: 35 @64116 has 1 MA's), (36, 64122), (38, 64149), (40, 64197), (42, 64218), (43, 64239), (44, 64257), (46, 64266), (50, 64314), (51, 64317), (52, 64320), (54, 64329), (57, 64353), (59, 64365), (62, 64407), (63, 64416), (65, 64440), (72, 64737),