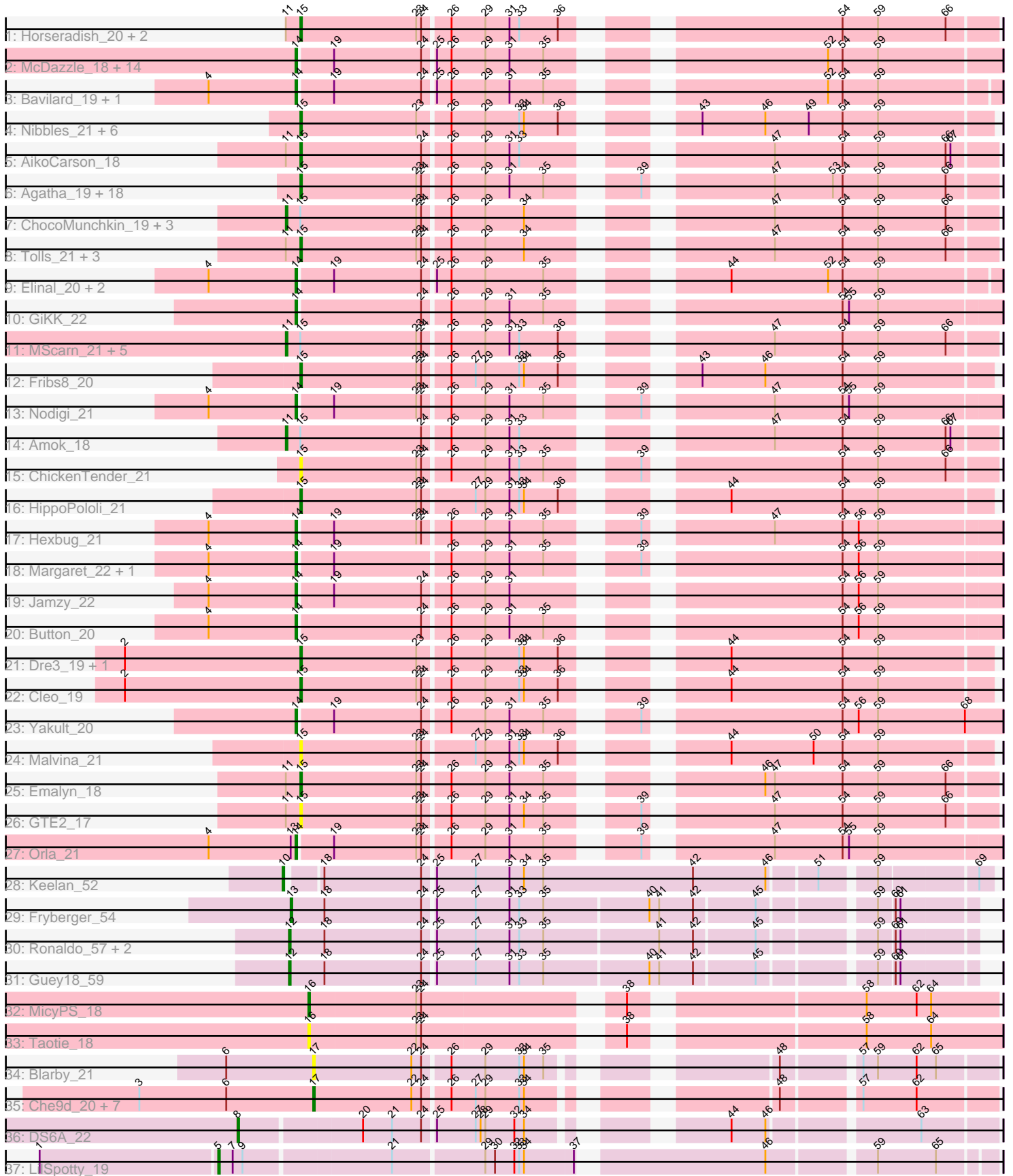


Pham 301246



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 301246 Report

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

Pham number 301246 has 102 members, 24 are drafts.

Phages represented in each track:

- Track 1 : Horseradish\_20, SweatNTears\_21, Yummy\_20
- Track 2 : McDazzle\_18, Feastonyet\_18, ElJefes\_18, CocoaPuff\_18, Vine\_20, Pons\_19, PotPie\_19, Balloona\_18, Tarnish\_19, Mayweather\_20, BigChungus\_18, SummitAcademy\_18, MAnor\_19, SheckWes\_18, CherryonLim\_20
- Track 3 : Bavidard\_19, Yucky\_19
- Track 4 : Nibbles\_21, Wallaby\_23, MaVan\_21, Azira\_21, Survivors\_21, Zareef\_21, Wolfwood\_21
- Track 5 : AikoCarson\_18
- Track 6 : Agatha\_19, Elliott\_19, Carsonalex\_20, Quasar\_19, Cozz\_19, Starburst\_20, Bubble\_19, PsychoKiller\_19, RSchmailzl\_20, RADical\_20, Nina\_20, RedBaron\_21, MunkgeeRoachy\_19, Typhonmarchy\_19, Sopespian\_19, GoldHunter\_20, Socotra\_20, Axym\_19, Burnsey\_19
- Track 7 : ChocoMunchkin\_19, AndPeggy\_18, CanesSauce\_19, CaramelLatte\_19
- Track 8 : Tolls\_21, BillDoor\_21, SteamedHams\_21, Yarn\_18
- Track 9 : Elinal\_20, KayGee\_19, Lauer\_18
- Track 10 : GiKK\_22
- Track 11 : MScarn\_21, Blondies\_20, Biskit\_20, SketchMex\_18, Buttrmlkdreams\_19, Troje\_19
- Track 12 : Fribs8\_20
- Track 13 : Nodigi\_21
- Track 14 : Amok\_18
- Track 15 : ChickenTender\_21
- Track 16 : HippoPololi\_21
- Track 17 : Hexbug\_21
- Track 18 : Margaret\_22, RanchParmCat\_22
- Track 19 : Jamzy\_22
- Track 20 : Button\_20
- Track 21 : Dre3\_19, Gibbous\_19
- Track 22 : Cleo\_19
- Track 23 : Yakult\_20
- Track 24 : Malvina\_21
- Track 25 : Emalyn\_18
- Track 26 : GTE2\_17
- Track 27 : Orla\_21
- Track 28 : Keelan\_52
- Track 29 : Fryberger\_54
- Track 30 : Ronaldo\_57, Ziko\_57, Volt\_56

- Track 31 : Guey18\_59
- Track 32 : MicyPS\_18
- Track 33 : Taotie\_18
- Track 34 : Blarby\_21
- Track 35 : Che9d\_20, Zapner\_21, Avani\_20, SilverChicken\_20, Jabbawokkie\_22, Demsculpinboyz\_20, Soul22\_20, Yoshi\_20
- Track 36 : DS6A\_22
- Track 37 : LilSpotty\_19

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

The start number called the most often in the published annotations is 15, it was called in 30 of the 78 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agatha\_19, AikoCarson\_18, Axym\_19, Azira\_21, BillDoor\_21, Bubble\_19, Burnsey\_19, Carsonalex\_20, ChickenTender\_21, Cleo\_19, Cozz\_19, Dre3\_19, Elliott\_19, Emalyn\_18, Fribs8\_20, GTE2\_17, Gibbous\_19, GoldHunter\_20, HippoPololi\_21, Horseradish\_20, MaVan\_21, Malvina\_21, MunkgeeRoachy\_19, Nibbles\_21, Nina\_20, PsychoKiller\_19, Quasar\_19, RADical\_20, RSchmailzl\_20, RedBaron\_21, Socotra\_20, Sopespian\_19, Starburst\_20, SteamedHams\_21, Survivors\_21, SweatNTears\_21, Tolls\_21, Typhonomachy\_19, Wallaby\_23, Wolfwood\_21, Yarn\_18, Yummy\_20, Zareef\_21,

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

- Amok\_18, AndPeggy\_18, Biskit\_20, Blondies\_20, Buttrmlkdreams\_19, CanesSauce\_19, CaramelLatte\_19, ChocoMunchkin\_19, MScarn\_21, SketchMex\_18, Troje\_19,

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

- Avani\_20, Balloona\_18, Bavidard\_19, BigChungus\_18, Blarby\_21, Button\_20, Che9d\_20, CherryonLim\_20, CocoaPuff\_18, DS6A\_22, Demsculpinboyz\_20, ElJefes\_18, Elinal\_20, Feastonyeet\_18, Fryberger\_54, GiKK\_22, Guey18\_59, Hexbug\_21, Jabbawokkie\_22, Jamzy\_22, KayGee\_19, Keelan\_52, Lauer\_18, LilSpotty\_19, MAnor\_19, Margaret\_22, Mayweather\_20, McDazzle\_18, MicyPS\_18, Nodigi\_21, Orla\_21, Pons\_19, PotPie\_19, RanchParmCat\_22, Ronaldo\_57, SheckWes\_18, SilverChicken\_20, Soul22\_20, SummitAcademy\_18, Taotie\_18, Tarnish\_19, Vine\_20, Volt\_56, Yakult\_20, Yoshi\_20, Yucky\_19, Zapner\_21, Ziko\_57,

**Summary by start number:**

Start 5:

- Found in 1 of 102 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LilSpotty\_19 (singleton),

Start 8:

- Found in 1 of 102 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 78

- Called 100.0% of time when present
- Phage (with cluster) where this start called: DS6A\_22 (singleton),

#### Start 10:

- Found in 1 of 102 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Keelan\_52 (DP),

#### Start 11:

- Found in 21 of 102 ( 20.6% ) of genes in pham
- Manual Annotations of this start: 8 of 78
- Called 52.4% of time when present
- Phage (with cluster) where this start called: Amok\_18 (CT), AndPeggy\_18 (CT), Biskit\_20 (CT), Blondies\_20 (CT), Buttrmlkdreams\_19 (CT), CanesSauce\_19 (CT), CaramelLatte\_19 (CT), ChocoMunchkin\_19 (CT), MScarn\_21 (CT), SketchMex\_18 (CT), Troje\_19 (CT),

#### Start 12:

- Found in 4 of 102 ( 3.9% ) of genes in pham
- Manual Annotations of this start: 4 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Guey18\_59 (DP), Ronaldo\_57 (DP), Volt\_56 (DP), Ziko\_57 (DP),

#### Start 13:

- Found in 2 of 102 ( 2.0% ) of genes in pham
- Manual Annotations of this start: 1 of 78
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Fryberger\_54 (DP),

#### Start 14:

- Found in 29 of 102 ( 28.4% ) of genes in pham
- Manual Annotations of this start: 24 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Balloona\_18 (CT), Bavidard\_19 (CT), BigChungus\_18 (CT), Button\_20 (CT), CherryonLim\_20 (CT), CocoaPuff\_18 (CT), ElJefes\_18 (CT), Elinal\_20 (CT), Feastonyeet\_18 (CT), GiKK\_22 (CT), Hexbug\_21 (CT), Jamzy\_22 (CT), KayGee\_19 (CT), Lauer\_18 (CT), MAnor\_19 (CT), Margaret\_22 (CT), Mayweather\_20 (CT), McDazzle\_18 (CT), Nodigi\_21 (CT), Orla\_21 (CT), Pons\_19 (CT), PotPie\_19 (CT), RanchParmCat\_22 (CT), SheckWes\_18 (CT), SummitAcademy\_18 (CT), Tarnish\_19 (CT), Vine\_20 (CT), Yakult\_20 (CT), Yucky\_19 (CT),

#### Start 15:

- Found in 54 of 102 ( 52.9% ) of genes in pham
- Manual Annotations of this start: 30 of 78
- Called 79.6% of time when present
- Phage (with cluster) where this start called: Agatha\_19 (CT), AikoCarson\_18 (CT), Axym\_19 (CT), Azira\_21 (CT), BillDoor\_21 (CT), Bubble\_19 (CT), Burnsey\_19 (CT), Carsonalex\_20 (CT), ChickenTender\_21 (CT), Cleo\_19 (CT), Cozz\_19 (CT), Dre3\_19 (CT), Elliott\_19 (CT), Emalyn\_18 (CT), Fribs8\_20 (CT), GTE2\_17 (CT), Gibbous\_19 (CT), GoldHunter\_20 (CT), HippoPololi\_21 (CT), Horseradish\_20 (CT), MaVan\_21

(CT), Malvina\_21 (CT), MunkgeeRoachy\_19 (CT), Nibbles\_21 (CT), Nina\_20 (CT), PsychoKiller\_19 (CT), Quasar\_19 (CT), RADical\_20 (CT), RSchmailzl\_20 (CT), RedBaron\_21 (CT), Socotra\_20 (CT), Sopespian\_19 (CT), Starburst\_20 (CT), SteamedHams\_21 (CT), Survivors\_21 (CT), SweatNTears\_21 (CT), Tolls\_21 (CT), Typhonomachy\_19 (CT), Wallaby\_23 (CT), Wolfwood\_21 (CT), Yarn\_18 (CT), Yummy\_20 (CT), Zareef\_21 (CT),

Start 16:

- Found in 2 of 102 ( 2.0% ) of genes in pham
- Manual Annotations of this start: 1 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: MicyPS\_18 (EQ), Taotie\_18 (EQ),

Start 17:

- Found in 9 of 102 ( 8.8% ) of genes in pham
- Manual Annotations of this start: 7 of 78
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Avani\_20 (F2), Blarby\_21 (F), Che9d\_20 (F2), Demsculpinboyz\_20 (F2), Jabbawokkie\_22 (F2), SilverChicken\_20 (F2), Soul22\_20 (F2), Yoshi\_20 (F2), Zapner\_21 (F2),

### **Summary by clusters:**

There are 6 clusters represented in this pham: singleton, F, F2, EQ, DP, CT,

Info for manual annotations of cluster CT:

- Start number 11 was manually annotated 8 times for cluster CT.
- Start number 14 was manually annotated 24 times for cluster CT.
- Start number 15 was manually annotated 30 times for cluster CT.

Info for manual annotations of cluster DP:

- Start number 10 was manually annotated 1 time for cluster DP.
- Start number 12 was manually annotated 4 times for cluster DP.
- Start number 13 was manually annotated 1 time for cluster DP.

Info for manual annotations of cluster EQ:

- Start number 16 was manually annotated 1 time for cluster EQ.

Info for manual annotations of cluster F2:

- Start number 17 was manually annotated 7 times for cluster F2.

### **Gene Information:**

Gene: Agatha\_19 Start: 17442, Stop: 17831, Start Num: 15

Candidate Starts for Agatha\_19:

(Start: 15 @17442 has 30 MA's), (23, 17514), (24, 17517), (26, 17532), (29, 17553), (31, 17568), (35, 17589), (39, 17631), (47, 17697), (53, 17733), (54, 17739), (59, 17760), (66, 17802),

Gene: AikoCarson\_18 Start: 16751, Stop: 17140, Start Num: 15

Candidate Starts for AikoCarson\_18:

(Start: 11 @16742 has 8 MA's), (Start: 15 @16751 has 30 MA's), (24, 16826), (26, 16841), (29, 16862), (31, 16877), (33, 16883), (47, 17006), (54, 17048), (59, 17069), (66, 17111), (67, 17114),

Gene: Amok\_18 Start: 16739, Stop: 17137, Start Num: 11

Candidate Starts for Amok\_18:

(Start: 11 @16739 has 8 MA's), (Start: 15 @16748 has 30 MA's), (24, 16823), (26, 16838), (29, 16859), (31, 16874), (33, 16880), (47, 17003), (54, 17045), (59, 17066), (66, 17108), (67, 17111),

Gene: AndPeggy\_18 Start: 17105, Stop: 17503, Start Num: 11

Candidate Starts for AndPeggy\_18:

(Start: 11 @17105 has 8 MA's), (Start: 15 @17114 has 30 MA's), (23, 17186), (24, 17189), (26, 17204), (29, 17225), (34, 17249), (47, 17369), (54, 17411), (59, 17432), (66, 17474),

Gene: Avani\_20 Start: 15408, Stop: 15773, Start Num: 17

Candidate Starts for Avani\_20:

(3, 15300), (6, 15354), (Start: 17 @15408 has 7 MA's), (22, 15468), (24, 15474), (26, 15489), (27, 15504), (29, 15510), (33, 15531), (34, 15534), (48, 15651), (57, 15693), (62, 15726),

Gene: Axym\_19 Start: 17442, Stop: 17831, Start Num: 15

Candidate Starts for Axym\_19:

(Start: 15 @17442 has 30 MA's), (23, 17514), (24, 17517), (26, 17532), (29, 17553), (31, 17568), (35, 17589), (39, 17631), (47, 17697), (53, 17733), (54, 17739), (59, 17760), (66, 17802),

Gene: Azira\_21 Start: 18423, Stop: 18809, Start Num: 15

Candidate Starts for Azira\_21:

(Start: 15 @18423 has 30 MA's), (23, 18495), (26, 18513), (29, 18534), (33, 18555), (34, 18558), (36, 18579), (43, 18633), (46, 18672), (49, 18699), (54, 18720), (59, 18741),

Gene: Balloona\_18 Start: 17116, Stop: 17508, Start Num: 14

Candidate Starts for Balloona\_18:

(Start: 14 @17116 has 24 MA's), (19, 17137), (24, 17191), (25, 17197), (26, 17206), (29, 17227), (31, 17242), (35, 17263), (52, 17404), (54, 17413), (59, 17434),

Gene: Bavilard\_19 Start: 17901, Stop: 18290, Start Num: 14

Candidate Starts for Bavilard\_19:

(4, 17847), (Start: 14 @17901 has 24 MA's), (19, 17922), (24, 17976), (25, 17982), (26, 17991), (29, 18012), (31, 18027), (35, 18048), (52, 18189), (54, 18198), (59, 18219),

Gene: BigChungus\_18 Start: 17156, Stop: 17548, Start Num: 14

Candidate Starts for BigChungus\_18:

(Start: 14 @17156 has 24 MA's), (19, 17177), (24, 17231), (25, 17237), (26, 17246), (29, 17267), (31, 17282), (35, 17303), (52, 17444), (54, 17453), (59, 17474),

Gene: BillDoor\_21 Start: 17082, Stop: 17471, Start Num: 15

Candidate Starts for BillDoor\_21:

(Start: 11 @17073 has 8 MA's), (Start: 15 @17082 has 30 MA's), (23, 17154), (24, 17157), (26, 17172), (29, 17193), (34, 17217), (47, 17337), (54, 17379), (59, 17400), (66, 17442),

Gene: Biskit\_20 Start: 17088, Stop: 17486, Start Num: 11

Candidate Starts for Biskit\_20:

(Start: 11 @17088 has 8 MA's), (Start: 15 @17097 has 30 MA's), (23, 17169), (24, 17172), (26, 17187), (29, 17208), (31, 17223), (33, 17229), (36, 17253), (47, 17352), (54, 17394), (59, 17415), (66, 17457),

Gene: Blarby\_21 Start: 15928, Stop: 16293, Start Num: 17

Candidate Starts for Blarby\_21:

(6, 15874), (Start: 17 @15928 has 7 MA's), (22, 15988), (24, 15994), (26, 16009), (29, 16030), (33, 16051), (34, 16054), (35, 16066), (48, 16171), (57, 16213), (59, 16222), (62, 16246), (65, 16258),

Gene: Blondies\_20 Start: 17071, Stop: 17469, Start Num: 11

Candidate Starts for Blondies\_20:

(Start: 11 @17071 has 8 MA's), (Start: 15 @17080 has 30 MA's), (23, 17152), (24, 17155), (26, 17170), (29, 17191), (31, 17206), (33, 17212), (36, 17236), (47, 17335), (54, 17377), (59, 17398), (66, 17440),

Gene: Bubble\_19 Start: 17442, Stop: 17831, Start Num: 15

Candidate Starts for Bubble\_19:

(Start: 15 @17442 has 30 MA's), (23, 17514), (24, 17517), (26, 17532), (29, 17553), (31, 17568), (35, 17589), (39, 17631), (47, 17697), (53, 17733), (54, 17739), (59, 17760), (66, 17802),

Gene: Burnsey\_19 Start: 17443, Stop: 17832, Start Num: 15

Candidate Starts for Burnsey\_19:

(Start: 15 @17443 has 30 MA's), (23, 17515), (24, 17518), (26, 17533), (29, 17554), (31, 17569), (35, 17590), (39, 17632), (47, 17698), (53, 17734), (54, 17740), (59, 17761), (66, 17803),

Gene: Button\_20 Start: 16475, Stop: 16867, Start Num: 14

Candidate Starts for Button\_20:

(4, 16421), (Start: 14 @16475 has 24 MA's), (24, 16550), (26, 16565), (29, 16586), (31, 16601), (35, 16622), (54, 16772), (56, 16781), (59, 16793),

Gene: Buttrmlkdreams\_19 Start: 17070, Stop: 17468, Start Num: 11

Candidate Starts for Buttrmlkdreams\_19:

(Start: 11 @17070 has 8 MA's), (Start: 15 @17079 has 30 MA's), (23, 17151), (24, 17154), (26, 17169), (29, 17190), (31, 17205), (33, 17211), (36, 17235), (47, 17334), (54, 17376), (59, 17397), (66, 17439),

Gene: CanesSauce\_19 Start: 17106, Stop: 17504, Start Num: 11

Candidate Starts for CanesSauce\_19:

(Start: 11 @17106 has 8 MA's), (Start: 15 @17115 has 30 MA's), (23, 17187), (24, 17190), (26, 17205), (29, 17226), (34, 17250), (47, 17370), (54, 17412), (59, 17433), (66, 17475),

Gene: CaramellLatte\_19 Start: 17106, Stop: 17504, Start Num: 11

Candidate Starts for CaramellLatte\_19:

(Start: 11 @17106 has 8 MA's), (Start: 15 @17115 has 30 MA's), (23, 17187), (24, 17190), (26, 17205), (29, 17226), (34, 17250), (47, 17370), (54, 17412), (59, 17433), (66, 17475),

Gene: Carsonalex\_20 Start: 17500, Stop: 17889, Start Num: 15

Candidate Starts for Carsonalex\_20:

(Start: 15 @17500 has 30 MA's), (23, 17572), (24, 17575), (26, 17590), (29, 17611), (31, 17626), (35, 17647), (39, 17689), (47, 17755), (53, 17791), (54, 17797), (59, 17818), (66, 17860),

Gene: Che9d\_20 Start: 15416, Stop: 15781, Start Num: 17

Candidate Starts for Che9d\_20:

(3, 15308), (6, 15362), (Start: 17 @15416 has 7 MA's), (22, 15476), (24, 15482), (26, 15497), (27, 15512), (29, 15518), (33, 15539), (34, 15542), (48, 15659), (57, 15701), (62, 15734),

Gene: CherryonLim\_20 Start: 17865, Stop: 18257, Start Num: 14

Candidate Starts for CherryonLim\_20:

(Start: 14 @17865 has 24 MA's), (19, 17886), (24, 17940), (25, 17946), (26, 17955), (29, 17976), (31, 17991), (35, 18012), (52, 18153), (54, 18162), (59, 18183),

Gene: ChickenTender\_21 Start: 17507, Stop: 17896, Start Num: 15

Candidate Starts for ChickenTender\_21:

(Start: 15 @17507 has 30 MA's), (23, 17579), (24, 17582), (26, 17597), (29, 17618), (31, 17633), (33, 17639), (35, 17654), (39, 17696), (54, 17804), (59, 17825), (66, 17867),

Gene: ChocoMunchkin\_19 Start: 17106, Stop: 17504, Start Num: 11

Candidate Starts for ChocoMunchkin\_19:

(Start: 11 @17106 has 8 MA's), (Start: 15 @17115 has 30 MA's), (23, 17187), (24, 17190), (26, 17205), (29, 17226), (34, 17250), (47, 17370), (54, 17412), (59, 17433), (66, 17475),

Gene: Cleo\_19 Start: 17736, Stop: 18122, Start Num: 15

Candidate Starts for Cleo\_19:

(2, 17628), (Start: 15 @17736 has 30 MA's), (23, 17808), (24, 17811), (26, 17826), (29, 17847), (33, 17868), (34, 17871), (36, 17892), (44, 17964), (54, 18033), (59, 18054),

Gene: CocoaPuff\_18 Start: 17110, Stop: 17502, Start Num: 14

Candidate Starts for CocoaPuff\_18:

(Start: 14 @17110 has 24 MA's), (19, 17131), (24, 17185), (25, 17191), (26, 17200), (29, 17221), (31, 17236), (35, 17257), (52, 17398), (54, 17407), (59, 17428),

Gene: Cozz\_19 Start: 17443, Stop: 17832, Start Num: 15

Candidate Starts for Cozz\_19:

(Start: 15 @17443 has 30 MA's), (23, 17515), (24, 17518), (26, 17533), (29, 17554), (31, 17569), (35, 17590), (39, 17632), (47, 17698), (53, 17734), (54, 17740), (59, 17761), (66, 17803),

Gene: DS6A\_22 Start: 18715, Stop: 19122, Start Num: 8

Candidate Starts for DS6A\_22:

(Start: 8 @18715 has 1 MA's), (20, 18787), (21, 18805), (24, 18823), (25, 18829), (27, 18853), (28, 18856), (29, 18859), (32, 18877), (34, 18883), (44, 18973), (46, 18994), (63, 19078),

Gene: Demsculpinboyz\_20 Start: 15401, Stop: 15766, Start Num: 17

Candidate Starts for Demsculpinboyz\_20:

(3, 15293), (6, 15347), (Start: 17 @15401 has 7 MA's), (22, 15461), (24, 15467), (26, 15482), (27, 15497), (29, 15503), (33, 15524), (34, 15527), (48, 15644), (57, 15686), (62, 15719),

Gene: Dre3\_19 Start: 17683, Stop: 18069, Start Num: 15

Candidate Starts for Dre3\_19:

(2, 17575), (Start: 15 @17683 has 30 MA's), (23, 17755), (26, 17773), (29, 17794), (33, 17815), (34, 17818), (36, 17839), (44, 17911), (54, 17980), (59, 18001),

Gene: ElJefes\_18 Start: 17588, Stop: 17980, Start Num: 14

Candidate Starts for ElJefes\_18:

(Start: 14 @17588 has 24 MA's), (19, 17609), (24, 17663), (25, 17669), (26, 17678), (29, 17699), (31, 17714), (35, 17735), (52, 17876), (54, 17885), (59, 17906),

Gene: Elinal\_20 Start: 17112, Stop: 17501, Start Num: 14

Candidate Starts for Elinal\_20:

(4, 17058), (Start: 14 @17112 has 24 MA's), (19, 17133), (24, 17187), (25, 17193), (26, 17202), (29, 17223), (35, 17259), (44, 17340), (52, 17400), (54, 17409), (59, 17430),

Gene: Elliott\_19 Start: 17442, Stop: 17831, Start Num: 15

Candidate Starts for Elliott\_19:

(Start: 15 @17442 has 30 MA's), (23, 17514), (24, 17517), (26, 17532), (29, 17553), (31, 17568), (35, 17589), (39, 17631), (47, 17697), (53, 17733), (54, 17739), (59, 17760), (66, 17802),

Gene: Emalyn\_18 Start: 16747, Stop: 17136, Start Num: 15

Candidate Starts for Emalyn\_18:

(Start: 11 @16738 has 8 MA's), (Start: 15 @16747 has 30 MA's), (23, 16819), (24, 16822), (26, 16837), (29, 16858), (31, 16873), (35, 16894), (46, 16996), (47, 17002), (54, 17044), (59, 17065), (66, 17107),

Gene: Feastonyeet\_18 Start: 17156, Stop: 17548, Start Num: 14

Candidate Starts for Feastonyeet\_18:

(Start: 14 @17156 has 24 MA's), (19, 17177), (24, 17231), (25, 17237), (26, 17246), (29, 17267), (31, 17282), (35, 17303), (52, 17444), (54, 17453), (59, 17474),

Gene: Fribs8\_20 Start: 18267, Stop: 18653, Start Num: 15

Candidate Starts for Fribs8\_20:

(Start: 15 @18267 has 30 MA's), (23, 18339), (24, 18342), (26, 18357), (27, 18372), (29, 18378), (33, 18399), (34, 18402), (36, 18423), (43, 18477), (46, 18516), (54, 18564), (59, 18585),

Gene: Fryberger\_54 Start: 29656, Stop: 30054, Start Num: 13

Candidate Starts for Fryberger\_54:

(Start: 13 @29656 has 1 MA's), (18, 29677), (24, 29737), (25, 29743), (27, 29767), (31, 29788), (33, 29794), (35, 29809), (40, 29872), (41, 29878), (42, 29899), (45, 29935), (59, 29998), (60, 30007), (61, 30010),

Gene: GTE2\_17 Start: 16788, Stop: 17177, Start Num: 15

Candidate Starts for GTE2\_17:

(Start: 11 @16779 has 8 MA's), (Start: 15 @16788 has 30 MA's), (23, 16860), (24, 16863), (26, 16878), (29, 16899), (31, 16914), (34, 16923), (35, 16935), (39, 16977), (47, 17043), (54, 17085), (59, 17106), (66, 17148),

Gene: GiKK\_22 Start: 16778, Stop: 17170, Start Num: 14

Candidate Starts for GiKK\_22:

(Start: 14 @16778 has 24 MA's), (24, 16853), (26, 16868), (29, 16889), (31, 16904), (35, 16925), (54, 17075), (55, 17078), (59, 17096),

Gene: Gibbous\_19 Start: 17683, Stop: 18069, Start Num: 15

Candidate Starts for Gibbous\_19:

(2, 17575), (Start: 15 @17683 has 30 MA's), (23, 17755), (26, 17773), (29, 17794), (33, 17815), (34, 17818), (36, 17839), (44, 17911), (54, 17980), (59, 18001),

Gene: GoldHunter\_20 Start: 17443, Stop: 17832, Start Num: 15

Candidate Starts for GoldHunter\_20:

(Start: 15 @17443 has 30 MA's), (23, 17515), (24, 17518), (26, 17533), (29, 17554), (31, 17569), (35, 17590), (39, 17632), (47, 17698), (53, 17734), (54, 17740), (59, 17761), (66, 17803),

Gene: Guey18\_59 Start: 30848, Stop: 31246, Start Num: 12

Candidate Starts for Guey18\_59:

(Start: 12 @30848 has 4 MA's), (18, 30869), (24, 30929), (25, 30935), (27, 30959), (31, 30980), (33, 30986), (35, 31001), (40, 31064), (41, 31070), (42, 31091), (45, 31127), (59, 31190), (60, 31199), (61, 31202),

Gene: Hexbug\_21 Start: 17464, Stop: 17856, Start Num: 14

Candidate Starts for Hexbug\_21:

(4, 17410), (Start: 14 @17464 has 24 MA's), (19, 17485), (23, 17536), (24, 17539), (26, 17554), (29, 17575), (31, 17590), (35, 17611), (39, 17653), (47, 17719), (54, 17761), (56, 17770), (59, 17782),

Gene: HippoPololi\_21 Start: 18335, Stop: 18721, Start Num: 15

Candidate Starts for HippoPololi\_21:

(Start: 15 @18335 has 30 MA's), (23, 18407), (24, 18410), (27, 18440), (29, 18446), (31, 18461), (33, 18467), (34, 18470), (36, 18491), (44, 18563), (54, 18632), (59, 18653),

Gene: Horseradish\_20 Start: 16993, Stop: 17382, Start Num: 15

Candidate Starts for Horseradish\_20:

(Start: 11 @16984 has 8 MA's), (Start: 15 @16993 has 30 MA's), (23, 17065), (24, 17068), (26, 17083), (29, 17104), (31, 17119), (33, 17125), (36, 17149), (54, 17290), (59, 17311), (66, 17353),

Gene: Jabbawokkie\_22 Start: 15931, Stop: 16296, Start Num: 17

Candidate Starts for Jabbawokkie\_22:

(3, 15823), (6, 15877), (Start: 17 @15931 has 7 MA's), (22, 15991), (24, 15997), (26, 16012), (27, 16027), (29, 16033), (33, 16054), (34, 16057), (48, 16174), (57, 16216), (62, 16249),

Gene: Jamzy\_22 Start: 16788, Stop: 17180, Start Num: 14

Candidate Starts for Jamzy\_22:

(4, 16734), (Start: 14 @16788 has 24 MA's), (19, 16809), (24, 16863), (26, 16878), (29, 16899), (31, 16914), (54, 17085), (56, 17094), (59, 17106),

Gene: KayGee\_19 Start: 17112, Stop: 17501, Start Num: 14

Candidate Starts for KayGee\_19:

(4, 17058), (Start: 14 @17112 has 24 MA's), (19, 17133), (24, 17187), (25, 17193), (26, 17202), (29, 17223), (35, 17259), (44, 17340), (52, 17400), (54, 17409), (59, 17430),

Gene: Keelan\_52 Start: 29645, Stop: 30055, Start Num: 10

Candidate Starts for Keelan\_52:

(Start: 10 @29645 has 1 MA's), (18, 29663), (24, 29723), (25, 29729), (27, 29753), (31, 29774), (34, 29783), (35, 29795), (42, 29888), (46, 29933), (51, 29960), (59, 29990), (69, 30047),

Gene: Lauer\_18 Start: 17161, Stop: 17550, Start Num: 14

Candidate Starts for Lauer\_18:

(4, 17107), (Start: 14 @17161 has 24 MA's), (19, 17182), (24, 17236), (25, 17242), (26, 17251), (29, 17272), (35, 17308), (44, 17389), (52, 17449), (54, 17458), (59, 17479),

Gene: LilSpotty\_19 Start: 16427, Stop: 16867, Start Num: 5

Candidate Starts for LilSpotty\_19:

(1, 16319), (Start: 5 @16427 has 1 MA's), (7, 16436), (9, 16442), (21, 16529), (29, 16583), (30, 16589), (32, 16601), (33, 16604), (34, 16607), (37, 16637), (46, 16739), (59, 16799), (65, 16835),

Gene: MAnor\_19 Start: 17120, Stop: 17512, Start Num: 14

Candidate Starts for MAnor\_19:

(Start: 14 @17120 has 24 MA's), (19, 17141), (24, 17195), (25, 17201), (26, 17210), (29, 17231), (31, 17246), (35, 17267), (52, 17408), (54, 17417), (59, 17438),

Gene: MScarn\_21 Start: 17073, Stop: 17471, Start Num: 11

Candidate Starts for MScarn\_21:

(Start: 11 @17073 has 8 MA's), (Start: 15 @17082 has 30 MA's), (23, 17154), (24, 17157), (26, 17172), (29, 17193), (31, 17208), (33, 17214), (36, 17238), (47, 17337), (54, 17379), (59, 17400), (66, 17442),

Gene: MaVan\_21 Start: 18423, Stop: 18809, Start Num: 15

Candidate Starts for MaVan\_21:

(Start: 15 @18423 has 30 MA's), (23, 18495), (26, 18513), (29, 18534), (33, 18555), (34, 18558), (36, 18579), (43, 18633), (46, 18672), (49, 18699), (54, 18720), (59, 18741),

Gene: Malvina\_21 Start: 18338, Stop: 18724, Start Num: 15

Candidate Starts for Malvina\_21:

(Start: 15 @18338 has 30 MA's), (23, 18410), (24, 18413), (27, 18443), (29, 18449), (31, 18464), (33, 18470), (34, 18473), (36, 18494), (44, 18566), (50, 18617), (54, 18635), (59, 18656),

Gene: Margaret\_22 Start: 17157, Stop: 17549, Start Num: 14

Candidate Starts for Margaret\_22:

(4, 17103), (Start: 14 @17157 has 24 MA's), (19, 17178), (26, 17247), (29, 17268), (31, 17283), (35, 17304), (39, 17346), (54, 17454), (56, 17463), (59, 17475),

Gene: Mayweather\_20 Start: 17735, Stop: 18127, Start Num: 14

Candidate Starts for Mayweather\_20:

(Start: 14 @17735 has 24 MA's), (19, 17756), (24, 17810), (25, 17816), (26, 17825), (29, 17846), (31, 17861), (35, 17882), (52, 18023), (54, 18032), (59, 18053),

Gene: McDazzle\_18 Start: 17582, Stop: 17974, Start Num: 14

Candidate Starts for McDazzle\_18:

(Start: 14 @17582 has 24 MA's), (19, 17603), (24, 17657), (25, 17663), (26, 17672), (29, 17693), (31, 17708), (35, 17729), (52, 17870), (54, 17879), (59, 17900),

Gene: MicyPS\_18 Start: 19058, Stop: 19444, Start Num: 16

Candidate Starts for MicyPS\_18:

(Start: 16 @19058 has 1 MA's), (23, 19124), (24, 19127), (38, 19235), (58, 19364), (62, 19394), (64, 19403),

Gene: MunkgeeRoachy\_19 Start: 17490, Stop: 17879, Start Num: 15

Candidate Starts for MunkgeeRoachy\_19:

(Start: 15 @17490 has 30 MA's), (23, 17562), (24, 17565), (26, 17580), (29, 17601), (31, 17616), (35, 17637), (39, 17679), (47, 17745), (53, 17781), (54, 17787), (59, 17808), (66, 17850),

Gene: Nibbles\_21 Start: 18423, Stop: 18809, Start Num: 15

Candidate Starts for Nibbles\_21:

(Start: 15 @18423 has 30 MA's), (23, 18495), (26, 18513), (29, 18534), (33, 18555), (34, 18558), (36, 18579), (43, 18633), (46, 18672), (49, 18699), (54, 18720), (59, 18741),

Gene: Nina\_20 Start: 18484, Stop: 18873, Start Num: 15

Candidate Starts for Nina\_20:

(Start: 15 @18484 has 30 MA's), (23, 18556), (24, 18559), (26, 18574), (29, 18595), (31, 18610), (35, 18631), (39, 18673), (47, 18739), (53, 18775), (54, 18781), (59, 18802), (66, 18844),

Gene: Nodigi\_21 Start: 17443, Stop: 17835, Start Num: 14

Candidate Starts for Nodigi\_21:

(4, 17389), (Start: 14 @17443 has 24 MA's), (19, 17464), (23, 17515), (24, 17518), (26, 17533), (29, 17554), (31, 17569), (35, 17590), (39, 17632), (47, 17698), (54, 17740), (55, 17743), (59, 17761),

Gene: Orla\_21 Start: 17447, Stop: 17839, Start Num: 14

Candidate Starts for Orla\_21:

(4, 17393), (Start: 13 @17444 has 1 MA's), (Start: 14 @17447 has 24 MA's), (19, 17468), (23, 17519), (24, 17522), (26, 17537), (29, 17558), (31, 17573), (35, 17594), (39, 17636), (47, 17702), (54, 17744), (55, 17747), (59, 17765),

Gene: Pons\_19 Start: 17110, Stop: 17502, Start Num: 14

Candidate Starts for Pons\_19:

(Start: 14 @17110 has 24 MA's), (19, 17131), (24, 17185), (25, 17191), (26, 17200), (29, 17221), (31, 17236), (35, 17257), (52, 17398), (54, 17407), (59, 17428),

Gene: PotPie\_19 Start: 17975, Stop: 18367, Start Num: 14

Candidate Starts for PotPie\_19:

(Start: 14 @17975 has 24 MA's), (19, 17996), (24, 18050), (25, 18056), (26, 18065), (29, 18086), (31, 18101), (35, 18122), (52, 18263), (54, 18272), (59, 18293),

Gene: PsychoKiller\_19 Start: 17442, Stop: 17831, Start Num: 15

Candidate Starts for PsychoKiller\_19:

(Start: 15 @17442 has 30 MA's), (23, 17514), (24, 17517), (26, 17532), (29, 17553), (31, 17568), (35, 17589), (39, 17631), (47, 17697), (53, 17733), (54, 17739), (59, 17760), (66, 17802),

Gene: Quasar\_19 Start: 18051, Stop: 18440, Start Num: 15

Candidate Starts for Quasar\_19:

(Start: 15 @18051 has 30 MA's), (23, 18123), (24, 18126), (26, 18141), (29, 18162), (31, 18177), (35, 18198), (39, 18240), (47, 18306), (53, 18342), (54, 18348), (59, 18369), (66, 18411),

Gene: RADical\_20 Start: 17443, Stop: 17832, Start Num: 15

Candidate Starts for RADical\_20:

(Start: 15 @17443 has 30 MA's), (23, 17515), (24, 17518), (26, 17533), (29, 17554), (31, 17569), (35, 17590), (39, 17632), (47, 17698), (53, 17734), (54, 17740), (59, 17761), (66, 17803),

Gene: RSchmailzl\_20 Start: 17586, Stop: 17975, Start Num: 15

Candidate Starts for RSchmailzl\_20:

(Start: 15 @17586 has 30 MA's), (23, 17658), (24, 17661), (26, 17676), (29, 17697), (31, 17712), (35, 17733), (39, 17775), (47, 17841), (53, 17877), (54, 17883), (59, 17904), (66, 17946),

Gene: RanchParmCat\_22 Start: 17157, Stop: 17549, Start Num: 14

Candidate Starts for RanchParmCat\_22:

(4, 17103), (Start: 14 @17157 has 24 MA's), (19, 17178), (26, 17247), (29, 17268), (31, 17283), (35, 17304), (39, 17346), (54, 17454), (56, 17463), (59, 17475),

Gene: RedBaron\_21 Start: 17486, Stop: 17875, Start Num: 15

Candidate Starts for RedBaron\_21:

(Start: 15 @17486 has 30 MA's), (23, 17558), (24, 17561), (26, 17576), (29, 17597), (31, 17612), (35, 17633), (39, 17675), (47, 17741), (53, 17777), (54, 17783), (59, 17804), (66, 17846),

Gene: Ronaldo\_57 Start: 30613, Stop: 31011, Start Num: 12

Candidate Starts for Ronaldo\_57:

(Start: 12 @30613 has 4 MA's), (18, 30634), (24, 30694), (25, 30700), (27, 30724), (31, 30745), (33, 30751), (35, 30766), (41, 30835), (42, 30856), (45, 30892), (59, 30955), (60, 30964), (61, 30967),

Gene: SheckWes\_18 Start: 17110, Stop: 17502, Start Num: 14

Candidate Starts for SheckWes\_18:

(Start: 14 @17110 has 24 MA's), (19, 17131), (24, 17185), (25, 17191), (26, 17200), (29, 17221), (31, 17236), (35, 17257), (52, 17398), (54, 17407), (59, 17428),

Gene: SilverChicken\_20 Start: 15408, Stop: 15773, Start Num: 17

Candidate Starts for SilverChicken\_20:

(3, 15300), (6, 15354), (Start: 17 @15408 has 7 MA's), (22, 15468), (24, 15474), (26, 15489), (27, 15504), (29, 15510), (33, 15531), (34, 15534), (48, 15651), (57, 15693), (62, 15726),

Gene: SketchMex\_18 Start: 17088, Stop: 17486, Start Num: 11

Candidate Starts for SketchMex\_18:

(Start: 11 @17088 has 8 MA's), (Start: 15 @17097 has 30 MA's), (23, 17169), (24, 17172), (26, 17187), (29, 17208), (31, 17223), (33, 17229), (36, 17253), (47, 17352), (54, 17394), (59, 17415), (66, 17457),

Gene: Socotra\_20 Start: 17442, Stop: 17831, Start Num: 15

Candidate Starts for Socotra\_20:

(Start: 15 @17442 has 30 MA's), (23, 17514), (24, 17517), (26, 17532), (29, 17553), (31, 17568), (35, 17589), (39, 17631), (47, 17697), (53, 17733), (54, 17739), (59, 17760), (66, 17802),

Gene: Sopespian\_19 Start: 17443, Stop: 17832, Start Num: 15

Candidate Starts for Sopespian\_19:

(Start: 15 @17443 has 30 MA's), (23, 17515), (24, 17518), (26, 17533), (29, 17554), (31, 17569), (35, 17590), (39, 17632), (47, 17698), (53, 17734), (54, 17740), (59, 17761), (66, 17803),

Gene: Soul22\_20 Start: 15406, Stop: 15771, Start Num: 17

Candidate Starts for Soul22\_20:

(3, 15298), (6, 15352), (Start: 17 @15406 has 7 MA's), (22, 15466), (24, 15472), (26, 15487), (27, 15502), (29, 15508), (33, 15529), (34, 15532), (48, 15649), (57, 15691), (62, 15724),

Gene: Starburst\_20 Start: 17442, Stop: 17831, Start Num: 15

Candidate Starts for Starburst\_20:

(Start: 15 @17442 has 30 MA's), (23, 17514), (24, 17517), (26, 17532), (29, 17553), (31, 17568), (35, 17589), (39, 17631), (47, 17697), (53, 17733), (54, 17739), (59, 17760), (66, 17802),

Gene: SteamedHams\_21 Start: 17115, Stop: 17504, Start Num: 15

Candidate Starts for SteamedHams\_21:

(Start: 11 @17106 has 8 MA's), (Start: 15 @17115 has 30 MA's), (23, 17187), (24, 17190), (26, 17205), (29, 17226), (34, 17250), (47, 17370), (54, 17412), (59, 17433), (66, 17475),

Gene: SummitAcademy\_18 Start: 17190, Stop: 17582, Start Num: 14

Candidate Starts for SummitAcademy\_18:

(Start: 14 @17190 has 24 MA's), (19, 17211), (24, 17265), (25, 17271), (26, 17280), (29, 17301), (31, 17316), (35, 17337), (52, 17478), (54, 17487), (59, 17508),

Gene: Survivors\_21 Start: 18272, Stop: 18658, Start Num: 15

Candidate Starts for Survivors\_21:

(Start: 15 @18272 has 30 MA's), (23, 18344), (26, 18362), (29, 18383), (33, 18404), (34, 18407), (36, 18428), (43, 18482), (46, 18521), (49, 18548), (54, 18569), (59, 18590),

Gene: SweatNTears\_21 Start: 17608, Stop: 17997, Start Num: 15

Candidate Starts for SweatNTears\_21:

(Start: 11 @17599 has 8 MA's), (Start: 15 @17608 has 30 MA's), (23, 17680), (24, 17683), (26, 17698), (29, 17719), (31, 17734), (33, 17740), (36, 17764), (54, 17905), (59, 17926), (66, 17968),

Gene: Taotie\_18 Start: 20067, Stop: 20456, Start Num: 16  
Candidate Starts for Taotie\_18:  
(Start: 16 @20067 has 1 MA's), (23, 20133), (24, 20136), (38, 20244), (58, 20373), (64, 20412),

Gene: Tarnish\_19 Start: 17480, Stop: 17872, Start Num: 14  
Candidate Starts for Tarnish\_19:  
(Start: 14 @17480 has 24 MA's), (19, 17501), (24, 17555), (25, 17561), (26, 17570), (29, 17591), (31, 17606), (35, 17627), (52, 17768), (54, 17777), (59, 17798),

Gene: Tolls\_21 Start: 17118, Stop: 17507, Start Num: 15  
Candidate Starts for Tolls\_21:  
(Start: 11 @17109 has 8 MA's), (Start: 15 @17118 has 30 MA's), (23, 17190), (24, 17193), (26, 17208), (29, 17229), (34, 17253), (47, 17373), (54, 17415), (59, 17436), (66, 17478),

Gene: Troje\_19 Start: 17070, Stop: 17468, Start Num: 11  
Candidate Starts for Troje\_19:  
(Start: 11 @17070 has 8 MA's), (Start: 15 @17079 has 30 MA's), (23, 17151), (24, 17154), (26, 17169), (29, 17190), (31, 17205), (33, 17211), (36, 17235), (47, 17334), (54, 17376), (59, 17397), (66, 17439),

Gene: Typhonomachy\_19 Start: 17442, Stop: 17831, Start Num: 15  
Candidate Starts for Typhonomachy\_19:  
(Start: 15 @17442 has 30 MA's), (23, 17514), (24, 17517), (26, 17532), (29, 17553), (31, 17568), (35, 17589), (39, 17631), (47, 17697), (53, 17733), (54, 17739), (59, 17760), (66, 17802),

Gene: Vine\_20 Start: 18125, Stop: 18514, Start Num: 14  
Candidate Starts for Vine\_20:  
(Start: 14 @18125 has 24 MA's), (19, 18146), (24, 18200), (25, 18206), (26, 18215), (29, 18236), (31, 18251), (35, 18272), (52, 18413), (54, 18422), (59, 18443),

Gene: Volt\_56 Start: 30613, Stop: 31011, Start Num: 12  
Candidate Starts for Volt\_56:  
(Start: 12 @30613 has 4 MA's), (18, 30634), (24, 30694), (25, 30700), (27, 30724), (31, 30745), (33, 30751), (35, 30766), (41, 30835), (42, 30856), (45, 30892), (59, 30955), (60, 30964), (61, 30967),

Gene: Wallaby\_23 Start: 18416, Stop: 18802, Start Num: 15  
Candidate Starts for Wallaby\_23:  
(Start: 15 @18416 has 30 MA's), (23, 18488), (26, 18506), (29, 18527), (33, 18548), (34, 18551), (36, 18572), (43, 18626), (46, 18665), (49, 18692), (54, 18713), (59, 18734),

Gene: Wolfwood\_21 Start: 18416, Stop: 18802, Start Num: 15  
Candidate Starts for Wolfwood\_21:  
(Start: 15 @18416 has 30 MA's), (23, 18488), (26, 18506), (29, 18527), (33, 18548), (34, 18551), (36, 18572), (43, 18626), (46, 18665), (49, 18692), (54, 18713), (59, 18734),

Gene: Yakult\_20 Start: 17008, Stop: 17403, Start Num: 14  
Candidate Starts for Yakult\_20:  
(Start: 14 @17008 has 24 MA's), (19, 17029), (24, 17083), (26, 17098), (29, 17119), (31, 17134), (35, 17155), (39, 17197), (54, 17305), (56, 17314), (59, 17326), (68, 17380),

Gene: Yarn\_18 Start: 17108, Stop: 17497, Start Num: 15  
Candidate Starts for Yarn\_18:  
(Start: 11 @17099 has 8 MA's), (Start: 15 @17108 has 30 MA's), (23, 17180), (24, 17183), (26, 17198), (29, 17219), (34, 17243), (47, 17363), (54, 17405), (59, 17426), (66, 17468),

Gene: Yoshi\_20 Start: 15407, Stop: 15772, Start Num: 17

Candidate Starts for Yoshi\_20:

(3, 15299), (6, 15353), (Start: 17 @15407 has 7 MA's), (22, 15467), (24, 15473), (26, 15488), (27, 15503), (29, 15509), (33, 15530), (34, 15533), (48, 15650), (57, 15692), (62, 15725),

Gene: Yucky\_19 Start: 17984, Stop: 18373, Start Num: 14

Candidate Starts for Yucky\_19:

(4, 17930), (Start: 14 @17984 has 24 MA's), (19, 18005), (24, 18059), (25, 18065), (26, 18074), (29, 18095), (31, 18110), (35, 18131), (52, 18272), (54, 18281), (59, 18302),

Gene: Yummy\_20 Start: 16993, Stop: 17382, Start Num: 15

Candidate Starts for Yummy\_20:

(Start: 11 @16984 has 8 MA's), (Start: 15 @16993 has 30 MA's), (23, 17065), (24, 17068), (26, 17083), (29, 17104), (31, 17119), (33, 17125), (36, 17149), (54, 17290), (59, 17311), (66, 17353),

Gene: Zapner\_21 Start: 15932, Stop: 16297, Start Num: 17

Candidate Starts for Zapner\_21:

(3, 15824), (6, 15878), (Start: 17 @15932 has 7 MA's), (22, 15992), (24, 15998), (26, 16013), (27, 16028), (29, 16034), (33, 16055), (34, 16058), (48, 16175), (57, 16217), (62, 16250),

Gene: Zareef\_21 Start: 18424, Stop: 18810, Start Num: 15

Candidate Starts for Zareef\_21:

(Start: 15 @18424 has 30 MA's), (23, 18496), (26, 18514), (29, 18535), (33, 18556), (34, 18559), (36, 18580), (43, 18634), (46, 18673), (49, 18700), (54, 18721), (59, 18742),

Gene: Ziko\_57 Start: 30553, Stop: 30951, Start Num: 12

Candidate Starts for Ziko\_57:

(Start: 12 @30553 has 4 MA's), (18, 30574), (24, 30634), (25, 30640), (27, 30664), (31, 30685), (33, 30691), (35, 30706), (41, 30775), (42, 30796), (45, 30832), (59, 30895), (60, 30904), (61, 30907),