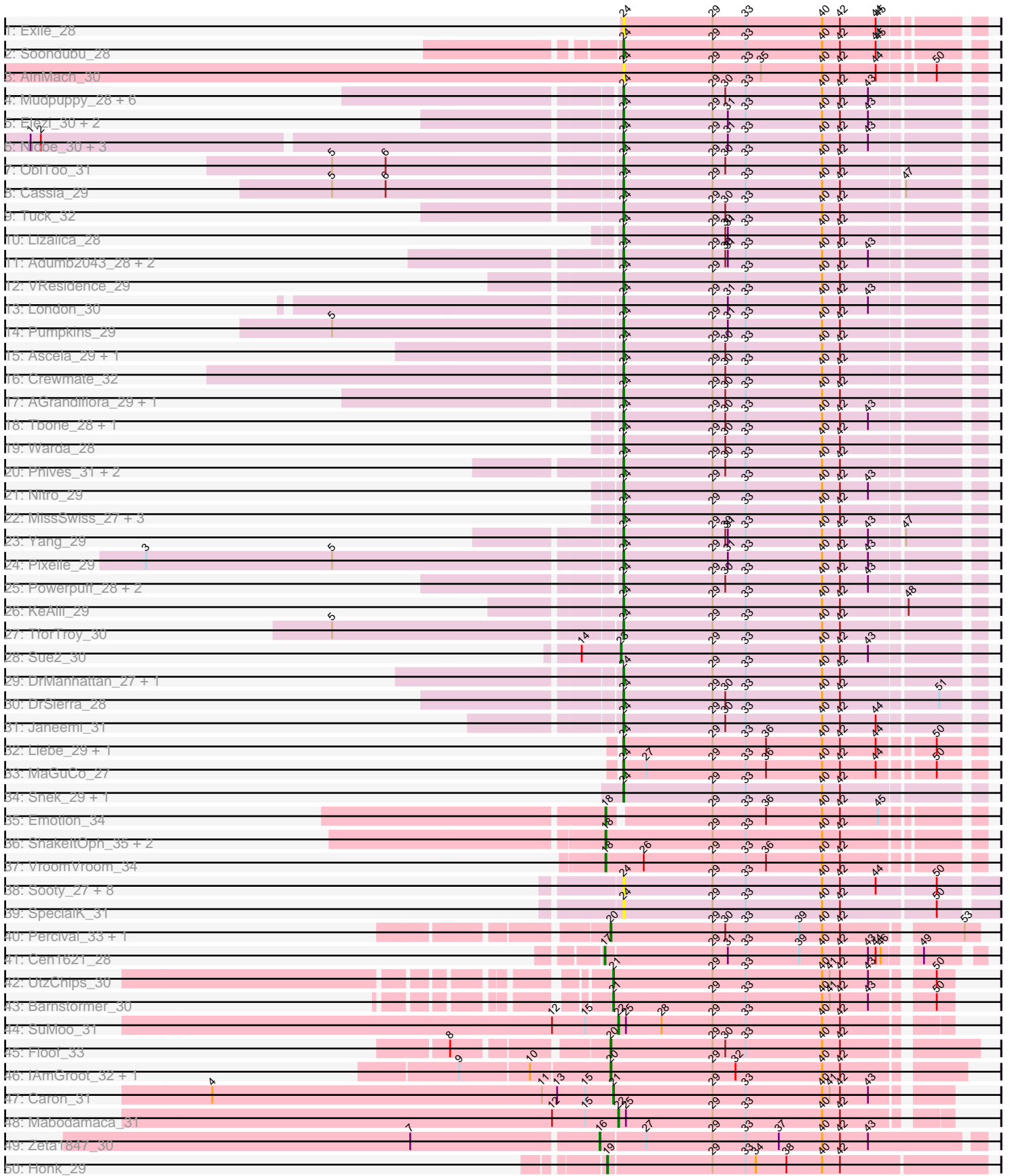
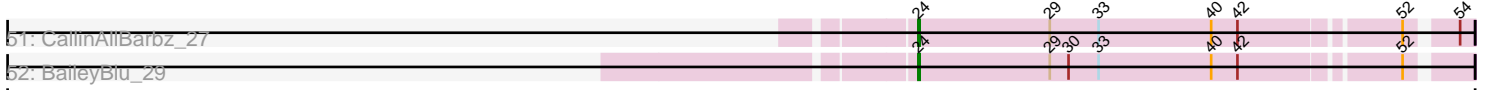


Pham 191221



Pham 191221



A series of horizontal lines for data entry, starting with a dashed line on the left and a dashed line on the right. The lines are evenly spaced and extend across the width of the page.

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 191221 Report

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

Pham number 191221 has 90 members, 22 are drafts.

Phages represented in each track:

- Track 1 : Exile\_28
- Track 2 : Soondubu\_28
- Track 3 : AinMach\_30
- Track 4 : Mudpuppy\_28, Cyan\_28, Kaylissa\_28, JohnDoe\_28, Tutumahutu\_28, Simpson\_30, Joemato\_28
- Track 5 : Elezi\_30, Tian\_29, Amyev\_29
- Track 6 : Niobe\_30, Asa16\_30, Jstan\_32, Eraser\_30
- Track 7 : ObiToo\_31
- Track 8 : Cassia\_29
- Track 9 : Tuck\_32
- Track 10 : Lizalica\_28
- Track 11 : Adumb2043\_28, Turab\_28, AEgle\_28
- Track 12 : VResidence\_29
- Track 13 : London\_30
- Track 14 : Pumpkins\_29
- Track 15 : Ascela\_29, Iter\_29
- Track 16 : Crewmate\_32
- Track 17 : AGrandiflora\_29, Lego\_28
- Track 18 : Tbone\_28, Tallboi\_29
- Track 19 : Warda\_28
- Track 20 : Phives\_31, Berrie\_30, Community\_30
- Track 21 : Nitro\_29
- Track 22 : MissSwiss\_27, Reedo\_28, JuneStar\_29, IttyBittyPiggy\_29
- Track 23 : Yang\_29
- Track 24 : Pixelle\_29
- Track 25 : Powerpuff\_28, YesChef\_28, Wildwest\_29
- Track 26 : KeAlii\_29
- Track 27 : TforTroy\_30
- Track 28 : Sue2\_30
- Track 29 : DrManhattan\_27, Adolin\_27
- Track 30 : DrSierra\_28
- Track 31 : Janeemi\_31
- Track 32 : Liebe\_29, Maureen\_29
- Track 33 : MaGuCo\_27
- Track 34 : Snek\_29, Tweety19\_29
- Track 35 : Emotion\_34
- Track 36 : ShakeltOph\_35, JasmineDragon\_34, MiniMommy\_35

- Track 37 : VroomVroom\_34
- Track 38 : Sooty\_27, Ashes\_30, Halsey\_33, Moss\_31, Mysterium\_27, Donkey\_27, Kalimba\_27, Cappuccino\_27, Gambol\_27
- Track 39 : SpecialK\_31
- Track 40 : Percival\_33, Gretchen\_33
- Track 41 : Cen1621\_28
- Track 42 : UtzChips\_30
- Track 43 : Barnstormer\_30
- Track 44 : SuMoo\_31
- Track 45 : Floof\_33
- Track 46 : IAmGroot\_32, GardenState\_32
- Track 47 : Caron\_31
- Track 48 : Mabodamaca\_31
- Track 49 : Zeta1847\_30
- Track 50 : Honk\_29
- Track 51 : CallinAllBarbz\_27
- Track 52 : BaileyBlu\_29

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

The start number called the most often in the published annotations is 24, it was called in 51 of the 68 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AEgle\_28, AGrandiflora\_29, Adolin\_27, Adumb2043\_28, AinMach\_30, Amyev\_29, Asa16\_30, Ascela\_29, Ashes\_30, BaileyBlu\_29, Berrie\_30, CallinAllBarbz\_27, Cappuccino\_27, Cassia\_29, Community\_30, Crewmate\_32, Cyan\_28, Donkey\_27, DrManhattan\_27, DrSierra\_28, Elezi\_30, Eraser\_30, Exile\_28, Gambol\_27, Halsey\_33, Iter\_29, IttyBittyPiggy\_29, Janeemi\_31, Joemato\_28, JohnDoe\_28, Jstan\_32, JuneStar\_29, Kalimba\_27, Kaylissa\_28, KeAlii\_29, Lego\_28, Liebe\_29, Lizalica\_28, London\_30, MaGuCo\_27, Maureen\_29, MissSwiss\_27, Moss\_31, Mudpuppy\_28, Mysterium\_27, Niobe\_30, Nitro\_29, ObiToo\_31, Phives\_31, Pixelle\_29, Powerpuff\_28, Pumpkins\_29, Reedo\_28, Simpson\_30, Snek\_29, Soondubu\_28, Sooty\_27, SpecialK\_31, Tallboi\_29, Tbone\_28, TforTroy\_30, Tian\_29, Tuck\_32, Turab\_28, Tutumahutu\_28, Tweety19\_29, VResidence\_29, Warda\_28, Wildwest\_29, Yang\_29, YesChef\_28,

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

- 

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

- Barnstormer\_30, Caron\_31, Cen1621\_28, Emotion\_34, Floof\_33, GardenState\_32, Gretchen\_33, Honk\_29, IAmGroot\_32, JasmineDragon\_34, Mabodamaca\_31, MiniMommy\_35, Percival\_33, ShakeltOph\_35, SuMoo\_31, Sue2\_30, UtzChips\_30, VroomVroom\_34, Zeta1847\_30,

**Summary by start number:**

Start 16:

- Found in 1 of 90 ( 1.1% ) of genes in pham

- Manual Annotations of this start: 1 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Zeta1847\_30 (EH),

Start 17:

- Found in 1 of 90 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cen1621\_28 (EH),

Start 18:

- Found in 5 of 90 ( 5.6% ) of genes in pham
- Manual Annotations of this start: 3 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Emotion\_34 (AZ4), JasmineDragon\_34 (AZ4), MiniMommy\_35 (AZ4), ShakeltOph\_35 (AZ4), VroomVroom\_34 (AZ4),

Start 19:

- Found in 1 of 90 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Honk\_29 (EH),

Start 20:

- Found in 5 of 90 ( 5.6% ) of genes in pham
- Manual Annotations of this start: 5 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Floof\_33 (EH), GardenState\_32 (EH), Gretchen\_33 (EH), IAmGroot\_32 (EH), Percival\_33 (EH),

Start 21:

- Found in 3 of 90 ( 3.3% ) of genes in pham
- Manual Annotations of this start: 3 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Barnstormer\_30 (EH), Caron\_31 (EH), UtzChips\_30 (EH),

Start 22:

- Found in 2 of 90 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 2 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Mabodamaca\_31 (EH), SuMoo\_31 (EH),

Start 23:

- Found in 1 of 90 ( 1.1% ) of genes in pham
- Manual Annotations of this start: 1 of 68
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sue2\_30 (AZ1),

Start 24:

- Found in 71 of 90 ( 78.9% ) of genes in pham
- Manual Annotations of this start: 51 of 68

- Called 100.0% of time when present
- Phage (with cluster) where this start called: AEgle\_28 (AZ1), AGrandiflora\_29 (AZ1), Adolin\_27 (AZ1), Adumb2043\_28 (AZ1), AinMach\_30 (AZ), Amyev\_29 (AZ1), Asa16\_30 (AZ1), Ascela\_29 (AZ1), Ashes\_30 (AZ5), BaileyBlu\_29 (FP), Berrie\_30 (AZ1), CallinAllBarbz\_27 (FP), Cappuccino\_27 (AZ5), Cassia\_29 (AZ1), Community\_30 (AZ1), Crewmate\_32 (AZ1), Cyan\_28 (AZ1), Donkey\_27 (AZ5), DrManhattan\_27 (AZ1), DrSierra\_28 (AZ1), Elezi\_30 (AZ1), Eraser\_30 (AZ1), Exile\_28 (AZ), Gambol\_27 (AZ5), Halsey\_33 (AZ5), Iter\_29 (AZ1), IttyBittyPiggy\_29 (AZ1), Janeemi\_31 (AZ1), Joemato\_28 (AZ1), JohnDoe\_28 (AZ1), Jstan\_32 (AZ1), JuneStar\_29 (AZ1), Kalimba\_27 (AZ5), Kaylissa\_28 (AZ1), KeAlii\_29 (AZ1), Lego\_28 (AZ1), Liebe\_29 (AZ2), Lizalica\_28 (AZ1), London\_30 (AZ1), MaGuCo\_27 (AZ2), Maureen\_29 (AZ2), MissSwiss\_27 (AZ1), Moss\_31 (AZ5), Mudpuppy\_28 (AZ1), Mysterium\_27 (AZ5), Niobe\_30 (AZ1), Nitro\_29 (AZ1), ObiToo\_31 (AZ1), Phives\_31 (AZ1), Pixelle\_29 (AZ1), Powerpuff\_28 (AZ1), Pumpkins\_29 (AZ1), Reedo\_28 (AZ1), Simpson\_30 (AZ1), Snek\_29 (AZ3), Soondubu\_28 (AZ), Sooty\_27 (AZ5), SpecialK\_31 (AZ5), Tallboi\_29 (AZ1), Tbone\_28 (AZ1), TforTroy\_30 (AZ1), Tian\_29 (AZ1), Tuck\_32 (AZ1), Turab\_28 (AZ1), Tutumahutu\_28 (AZ1), Tweety19\_29 (AZ3), VResidence\_29 (AZ1), Warda\_28 (AZ1), Wildwest\_29 (AZ1), Yang\_29 (AZ1), YesChef\_28 (AZ1),

### Summary by clusters:

There are 8 clusters represented in this pham: FP, AZ3, EH, AZ1, AZ2, AZ, AZ4, AZ5,

Info for manual annotations of cluster AZ:

- Start number 24 was manually annotated 1 time for cluster AZ.

Info for manual annotations of cluster AZ1:

- Start number 23 was manually annotated 1 time for cluster AZ1.
- Start number 24 was manually annotated 43 times for cluster AZ1.

Info for manual annotations of cluster AZ2:

- Start number 24 was manually annotated 3 times for cluster AZ2.

Info for manual annotations of cluster AZ3:

- Start number 24 was manually annotated 2 times for cluster AZ3.

Info for manual annotations of cluster AZ4:

- Start number 18 was manually annotated 3 times for cluster AZ4.

Info for manual annotations of cluster EH:

- Start number 16 was manually annotated 1 time for cluster EH.
- Start number 17 was manually annotated 1 time for cluster EH.
- Start number 19 was manually annotated 1 time for cluster EH.
- Start number 20 was manually annotated 5 times for cluster EH.
- Start number 21 was manually annotated 3 times for cluster EH.
- Start number 22 was manually annotated 2 times for cluster EH.

Info for manual annotations of cluster FP:

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

**Gene Information:**

Gene: AEgle\_28 Start: 22637, Stop: 23041, Start Num: 24

Candidate Starts for AEgle\_28:

(Start: 24 @22637 has 51 MA's), (29, 22742), (30, 22757), (31, 22760), (33, 22781), (40, 22871), (42, 22892), (43, 22925),

Gene: AGrandiflora\_29 Start: 22667, Stop: 23071, Start Num: 24

Candidate Starts for AGrandiflora\_29:

(Start: 24 @22667 has 51 MA's), (29, 22772), (30, 22787), (33, 22811), (40, 22901), (42, 22922),

Gene: Adolin\_27 Start: 21091, Stop: 21495, Start Num: 24

Candidate Starts for Adolin\_27:

(Start: 24 @21091 has 51 MA's), (29, 21196), (33, 21235), (40, 21325), (42, 21346),

Gene: Adumb2043\_28 Start: 22636, Stop: 23040, Start Num: 24

Candidate Starts for Adumb2043\_28:

(Start: 24 @22636 has 51 MA's), (29, 22741), (30, 22756), (31, 22759), (33, 22780), (40, 22870), (42, 22891), (43, 22924),

Gene: AinMach\_30 Start: 23615, Stop: 24013, Start Num: 24

Candidate Starts for AinMach\_30:

(Start: 24 @23615 has 51 MA's), (29, 23720), (33, 23759), (35, 23777), (40, 23849), (42, 23870), (44, 23912), (50, 23969),

Gene: Amyev\_29 Start: 24561, Stop: 24965, Start Num: 24

Candidate Starts for Amyev\_29:

(Start: 24 @24561 has 51 MA's), (29, 24666), (31, 24684), (33, 24705), (40, 24795), (42, 24816), (43, 24849),

Gene: Asa16\_30 Start: 24809, Stop: 25213, Start Num: 24

Candidate Starts for Asa16\_30:

(1, 24143), (2, 24155), (Start: 24 @24809 has 51 MA's), (29, 24914), (31, 24932), (33, 24953), (40, 25043), (42, 25064), (43, 25097),

Gene: Ascela\_29 Start: 22804, Stop: 23208, Start Num: 24

Candidate Starts for Ascela\_29:

(Start: 24 @22804 has 51 MA's), (29, 22909), (30, 22924), (33, 22948), (40, 23038), (42, 23059),

Gene: Ashes\_30 Start: 20985, Stop: 21407, Start Num: 24

Candidate Starts for Ashes\_30:

(Start: 24 @20985 has 51 MA's), (29, 21090), (33, 21129), (40, 21219), (42, 21240), (44, 21282), (50, 21348),

Gene: BaileyBlu\_29 Start: 22420, Stop: 22836, Start Num: 24

Candidate Starts for BaileyBlu\_29:

(Start: 24 @22420 has 51 MA's), (29, 22525), (30, 22540), (33, 22564), (40, 22654), (42, 22675), (52, 22792),

Gene: Barnstormer\_30 Start: 22955, Stop: 23335, Start Num: 21

Candidate Starts for Barnstormer\_30:

(Start: 21 @22955 has 3 MA's), (29, 23072), (33, 23111), (40, 23201), (41, 23210), (42, 23222), (43, 23255), (50, 23315),

Gene: Berrie\_30 Start: 23864, Stop: 24268, Start Num: 24

Candidate Starts for Berrie\_30:

(Start: 24 @23864 has 51 MA's), (29, 23969), (30, 23984), (33, 24008), (40, 24098), (42, 24119),

Gene: CallinAllBarbz\_27 Start: 22247, Stop: 22663, Start Num: 24

Candidate Starts for CallinAllBarbz\_27:

(Start: 24 @22247 has 51 MA's), (29, 22352), (33, 22391), (40, 22481), (42, 22502), (52, 22619), (54, 22652),

Gene: Cappuccino\_27 Start: 20894, Stop: 21316, Start Num: 24

Candidate Starts for Cappuccino\_27:

(Start: 24 @20894 has 51 MA's), (29, 20999), (33, 21038), (40, 21128), (42, 21149), (44, 21191), (50, 21257),

Gene: Caron\_31 Start: 23006, Stop: 23386, Start Num: 21

Candidate Starts for Caron\_31:

(4, 22538), (11, 22922), (13, 22940), (15, 22973), (Start: 21 @23006 has 3 MA's), (29, 23123), (33, 23162), (40, 23252), (41, 23261), (42, 23273), (43, 23306),

Gene: Cassia\_29 Start: 23256, Stop: 23660, Start Num: 24

Candidate Starts for Cassia\_29:

(5, 22932), (6, 22995), (Start: 24 @23256 has 51 MA's), (29, 23361), (33, 23400), (40, 23490), (42, 23511), (47, 23580),

Gene: Cen1621\_28 Start: 21545, Stop: 21955, Start Num: 17

Candidate Starts for Cen1621\_28:

(Start: 17 @21545 has 1 MA's), (29, 21668), (31, 21686), (33, 21707), (39, 21770), (40, 21797), (42, 21818), (43, 21851), (44, 21860), (46, 21866), (49, 21896),

Gene: Community\_30 Start: 24994, Stop: 25398, Start Num: 24

Candidate Starts for Community\_30:

(Start: 24 @24994 has 51 MA's), (29, 25099), (30, 25114), (33, 25138), (40, 25228), (42, 25249),

Gene: Crewmate\_32 Start: 23514, Stop: 23918, Start Num: 24

Candidate Starts for Crewmate\_32:

(Start: 24 @23514 has 51 MA's), (29, 23619), (30, 23634), (33, 23658), (40, 23748), (42, 23769),

Gene: Cyan\_28 Start: 22726, Stop: 23130, Start Num: 24

Candidate Starts for Cyan\_28:

(Start: 24 @22726 has 51 MA's), (29, 22831), (30, 22846), (33, 22870), (40, 22960), (42, 22981), (43, 23014),

Gene: Donkey\_27 Start: 20894, Stop: 21316, Start Num: 24

Candidate Starts for Donkey\_27:

(Start: 24 @20894 has 51 MA's), (29, 20999), (33, 21038), (40, 21128), (42, 21149), (44, 21191), (50, 21257),

Gene: DrManhattan\_27 Start: 21081, Stop: 21485, Start Num: 24

Candidate Starts for DrManhattan\_27:

(Start: 24 @21081 has 51 MA's), (29, 21186), (33, 21225), (40, 21315), (42, 21336),



Gene: DrSierra\_28 Start: 21759, Stop: 22163, Start Num: 24

Candidate Starts for DrSierra\_28:

(Start: 24 @21759 has 51 MA's), (29, 21864), (30, 21879), (33, 21903), (40, 21993), (42, 22014), (51, 22122),

Gene: Elezi\_30 Start: 24824, Stop: 25228, Start Num: 24

Candidate Starts for Elezi\_30:

(Start: 24 @24824 has 51 MA's), (29, 24929), (31, 24947), (33, 24968), (40, 25058), (42, 25079), (43, 25112),

Gene: Emotion\_34 Start: 24684, Stop: 25088, Start Num: 18

Candidate Starts for Emotion\_34:

(Start: 18 @24684 has 3 MA's), (29, 24798), (33, 24837), (36, 24861), (40, 24927), (42, 24948), (45, 24993),

Gene: Eraser\_30 Start: 24816, Stop: 25220, Start Num: 24

Candidate Starts for Eraser\_30:

(1, 24150), (2, 24162), (Start: 24 @24816 has 51 MA's), (29, 24921), (31, 24939), (33, 24960), (40, 25050), (42, 25071), (43, 25104),

Gene: Exile\_28 Start: 24957, Stop: 25355, Start Num: 24

Candidate Starts for Exile\_28:

(Start: 24 @24957 has 51 MA's), (29, 25062), (33, 25101), (40, 25191), (42, 25212), (44, 25254), (45, 25257),

Gene: Floop\_33 Start: 24052, Stop: 24465, Start Num: 20

Candidate Starts for Floop\_33:

(8, 23893), (Start: 20 @24052 has 5 MA's), (29, 24172), (30, 24187), (33, 24211), (40, 24301), (42, 24322),

Gene: Gambol\_27 Start: 20894, Stop: 21316, Start Num: 24

Candidate Starts for Gambol\_27:

(Start: 24 @20894 has 51 MA's), (29, 20999), (33, 21038), (40, 21128), (42, 21149), (44, 21191), (50, 21257),

Gene: GardenState\_32 Start: 23620, Stop: 24018, Start Num: 20

Candidate Starts for GardenState\_32:

(9, 23452), (10, 23530), (Start: 20 @23620 has 5 MA's), (29, 23740), (32, 23767), (40, 23869), (42, 23890),

Gene: Gretchen\_33 Start: 25200, Stop: 25613, Start Num: 20

Candidate Starts for Gretchen\_33:

(Start: 20 @25200 has 5 MA's), (29, 25320), (30, 25335), (33, 25359), (39, 25422), (40, 25449), (42, 25470), (53, 25596),

Gene: Halsey\_33 Start: 20990, Stop: 21412, Start Num: 24

Candidate Starts for Halsey\_33:

(Start: 24 @20990 has 51 MA's), (29, 21095), (33, 21134), (40, 21224), (42, 21245), (44, 21287), (50, 21353),

Gene: Honk\_29 Start: 21190, Stop: 21627, Start Num: 19

Candidate Starts for Honk\_29:

(Start: 19 @21190 has 1 MA's), (29, 21310), (33, 21349), (34, 21361), (38, 21397), (40, 21439), (42, 21460),

Gene: IAmGroot\_32 Start: 24284, Stop: 24682, Start Num: 20

Candidate Starts for IAmGroot\_32:

(9, 24116), (10, 24194), (Start: 20 @24284 has 5 MA's), (29, 24404), (32, 24431), (40, 24533), (42, 24554),

Gene: Iter\_29 Start: 22804, Stop: 23208, Start Num: 24

Candidate Starts for Iter\_29:

(Start: 24 @22804 has 51 MA's), (29, 22909), (30, 22924), (33, 22948), (40, 23038), (42, 23059),

Gene: IttyBittyPiggy\_29 Start: 23044, Stop: 23448, Start Num: 24

Candidate Starts for IttyBittyPiggy\_29:

(Start: 24 @23044 has 51 MA's), (29, 23149), (33, 23188), (40, 23278), (42, 23299),

Gene: Janeemi\_31 Start: 25023, Stop: 25427, Start Num: 24

Candidate Starts for Janeemi\_31:

(Start: 24 @25023 has 51 MA's), (29, 25128), (30, 25143), (33, 25167), (40, 25257), (42, 25278), (44, 25320),

Gene: JasmineDragon\_34 Start: 24080, Stop: 24496, Start Num: 18

Candidate Starts for JasmineDragon\_34:

(Start: 18 @24080 has 3 MA's), (29, 24206), (33, 24245), (40, 24335), (42, 24356),

Gene: Joemato\_28 Start: 22726, Stop: 23130, Start Num: 24

Candidate Starts for Joemato\_28:

(Start: 24 @22726 has 51 MA's), (29, 22831), (30, 22846), (33, 22870), (40, 22960), (42, 22981), (43, 23014),

Gene: JohnDoe\_28 Start: 22721, Stop: 23125, Start Num: 24

Candidate Starts for JohnDoe\_28:

(Start: 24 @22721 has 51 MA's), (29, 22826), (30, 22841), (33, 22865), (40, 22955), (42, 22976), (43, 23009),

Gene: Jstan\_32 Start: 24810, Stop: 25214, Start Num: 24

Candidate Starts for Jstan\_32:

(1, 24144), (2, 24156), (Start: 24 @24810 has 51 MA's), (29, 24915), (31, 24933), (33, 24954), (40, 25044), (42, 25065), (43, 25098),

Gene: JuneStar\_29 Start: 24954, Stop: 25358, Start Num: 24

Candidate Starts for JuneStar\_29:

(Start: 24 @24954 has 51 MA's), (29, 25059), (33, 25098), (40, 25188), (42, 25209),

Gene: Kalimba\_27 Start: 20894, Stop: 21316, Start Num: 24

Candidate Starts for Kalimba\_27:

(Start: 24 @20894 has 51 MA's), (29, 20999), (33, 21038), (40, 21128), (42, 21149), (44, 21191), (50, 21257),

Gene: Kaylissa\_28 Start: 22716, Stop: 23120, Start Num: 24

Candidate Starts for Kaylissa\_28:

(Start: 24 @22716 has 51 MA's), (29, 22821), (30, 22836), (33, 22860), (40, 22950), (42, 22971), (43, 23004),

Gene: KeAlii\_29 Start: 22886, Stop: 23290, Start Num: 24

Candidate Starts for KeAlii\_29:

(Start: 24 @22886 has 51 MA's), (29, 22991), (33, 23030), (40, 23120), (42, 23141), (48, 23213),

Gene: Lego\_28 Start: 22670, Stop: 23074, Start Num: 24

Candidate Starts for Lego\_28:

(Start: 24 @22670 has 51 MA's), (29, 22775), (30, 22790), (33, 22814), (40, 22904), (42, 22925),

Gene: Liebe\_29 Start: 23638, Stop: 24033, Start Num: 24

Candidate Starts for Liebe\_29:

(Start: 24 @23638 has 51 MA's), (29, 23743), (33, 23782), (36, 23806), (40, 23872), (42, 23893), (44, 23935), (50, 23989),

Gene: Lizalica\_28 Start: 22719, Stop: 23123, Start Num: 24

Candidate Starts for Lizalica\_28:

(Start: 24 @22719 has 51 MA's), (29, 22824), (30, 22839), (31, 22842), (33, 22863), (40, 22953), (42, 22974),

Gene: London\_30 Start: 24824, Stop: 25228, Start Num: 24

Candidate Starts for London\_30:

(Start: 24 @24824 has 51 MA's), (29, 24929), (31, 24947), (33, 24968), (40, 25058), (42, 25079), (43, 25112),

Gene: MaGuCo\_27 Start: 22439, Stop: 22834, Start Num: 24

Candidate Starts for MaGuCo\_27:

(Start: 24 @22439 has 51 MA's), (27, 22466), (29, 22544), (33, 22583), (36, 22607), (40, 22673), (42, 22694), (44, 22736), (50, 22790),

Gene: Mabodamaca\_31 Start: 23721, Stop: 24092, Start Num: 22

Candidate Starts for Mabodamaca\_31:

(12, 23643), (15, 23682), (Start: 22 @23721 has 2 MA's), (25, 23730), (29, 23832), (33, 23871), (40, 23961), (42, 23982),

Gene: Maureen\_29 Start: 23638, Stop: 24033, Start Num: 24

Candidate Starts for Maureen\_29:

(Start: 24 @23638 has 51 MA's), (29, 23743), (33, 23782), (36, 23806), (40, 23872), (42, 23893), (44, 23935), (50, 23989),

Gene: MiniMommy\_35 Start: 24081, Stop: 24497, Start Num: 18

Candidate Starts for MiniMommy\_35:

(Start: 18 @24081 has 3 MA's), (29, 24207), (33, 24246), (40, 24336), (42, 24357),

Gene: MissSwiss\_27 Start: 21144, Stop: 21548, Start Num: 24

Candidate Starts for MissSwiss\_27:

(Start: 24 @21144 has 51 MA's), (29, 21249), (33, 21288), (40, 21378), (42, 21399),

Gene: Moss\_31 Start: 20986, Stop: 21408, Start Num: 24

Candidate Starts for Moss\_31:

(Start: 24 @20986 has 51 MA's), (29, 21091), (33, 21130), (40, 21220), (42, 21241), (44, 21283), (50, 21349),

Gene: Mudpuppy\_28 Start: 22721, Stop: 23125, Start Num: 24

Candidate Starts for Mudpuppy\_28:

(Start: 24 @22721 has 51 MA's), (29, 22826), (30, 22841), (33, 22865), (40, 22955), (42, 22976), (43, 23009),

Gene: Mysterium\_27 Start: 20986, Stop: 21408, Start Num: 24

Candidate Starts for Mysterium\_27:

(Start: 24 @20986 has 51 MA's), (29, 21091), (33, 21130), (40, 21220), (42, 21241), (44, 21283), (50, 21349),

Gene: Niobe\_30 Start: 24810, Stop: 25214, Start Num: 24

Candidate Starts for Niobe\_30:

(1, 24144), (2, 24156), (Start: 24 @24810 has 51 MA's), (29, 24915), (31, 24933), (33, 24954), (40, 25044), (42, 25065), (43, 25098),

Gene: Nitro\_29 Start: 24134, Stop: 24538, Start Num: 24

Candidate Starts for Nitro\_29:

(Start: 24 @24134 has 51 MA's), (29, 24239), (33, 24278), (40, 24368), (42, 24389), (43, 24422),

Gene: ObiToo\_31 Start: 23254, Stop: 23658, Start Num: 24

Candidate Starts for ObiToo\_31:

(5, 22930), (6, 22993), (Start: 24 @23254 has 51 MA's), (29, 23359), (30, 23374), (33, 23398), (40, 23488), (42, 23509),

Gene: Percival\_33 Start: 25031, Stop: 25444, Start Num: 20

Candidate Starts for Percival\_33:

(Start: 20 @25031 has 5 MA's), (29, 25151), (30, 25166), (33, 25190), (39, 25253), (40, 25280), (42, 25301), (53, 25427),

Gene: Phives\_31 Start: 24831, Stop: 25235, Start Num: 24

Candidate Starts for Phives\_31:

(Start: 24 @24831 has 51 MA's), (29, 24936), (30, 24951), (33, 24975), (40, 25065), (42, 25086),

Gene: Pixelle\_29 Start: 24581, Stop: 24985, Start Num: 24

Candidate Starts for Pixelle\_29:

(3, 24038), (5, 24257), (Start: 24 @24581 has 51 MA's), (29, 24686), (31, 24704), (33, 24725), (40, 24815), (42, 24836), (43, 24869),

Gene: Powerpuff\_28 Start: 22721, Stop: 23125, Start Num: 24

Candidate Starts for Powerpuff\_28:

(Start: 24 @22721 has 51 MA's), (29, 22826), (30, 22841), (33, 22865), (40, 22955), (42, 22976), (43, 23009),

Gene: Pumpkins\_29 Start: 23676, Stop: 24080, Start Num: 24

Candidate Starts for Pumpkins\_29:

(5, 23352), (Start: 24 @23676 has 51 MA's), (29, 23781), (31, 23799), (33, 23820), (40, 23910), (42, 23931),

Gene: Reedo\_28 Start: 21307, Stop: 21711, Start Num: 24

Candidate Starts for Reedo\_28:

(Start: 24 @21307 has 51 MA's), (29, 21412), (33, 21451), (40, 21541), (42, 21562),

Gene: ShakeltOph\_35 Start: 24080, Stop: 24496, Start Num: 18

Candidate Starts for ShakeltOph\_35:

(Start: 18 @24080 has 3 MA's), (29, 24206), (33, 24245), (40, 24335), (42, 24356),

Gene: Simpson\_30 Start: 22726, Stop: 23130, Start Num: 24

Candidate Starts for Simpson\_30:

(Start: 24 @22726 has 51 MA's), (29, 22831), (30, 22846), (33, 22870), (40, 22960), (42, 22981), (43, 23014),

Gene: Snek\_29 Start: 21883, Stop: 22287, Start Num: 24

Candidate Starts for Snek\_29:

(Start: 24 @21883 has 51 MA's), (29, 21988), (33, 22027), (40, 22117), (42, 22138),

Gene: Soondubu\_28 Start: 24961, Stop: 25359, Start Num: 24

Candidate Starts for Soondubu\_28:

(Start: 24 @24961 has 51 MA's), (29, 25066), (33, 25105), (40, 25195), (42, 25216), (44, 25258), (45, 25261),

Gene: Sooty\_27 Start: 20896, Stop: 21318, Start Num: 24

Candidate Starts for Sooty\_27:

(Start: 24 @20896 has 51 MA's), (29, 21001), (33, 21040), (40, 21130), (42, 21151), (44, 21193), (50, 21259),

Gene: SpecialK\_31 Start: 20893, Stop: 21315, Start Num: 24

Candidate Starts for SpecialK\_31:

(Start: 24 @20893 has 51 MA's), (29, 20998), (33, 21037), (40, 21127), (42, 21148), (50, 21256),

Gene: SuMoo\_31 Start: 22679, Stop: 23050, Start Num: 22

Candidate Starts for SuMoo\_31:

(12, 22601), (15, 22640), (Start: 22 @22679 has 2 MA's), (25, 22688), (28, 22730), (29, 22790), (33, 22829), (40, 22919), (42, 22940),

Gene: Sue2\_30 Start: 23607, Stop: 24014, Start Num: 23

Candidate Starts for Sue2\_30:

(14, 23565), (Start: 23 @23607 has 1 MA's), (29, 23715), (33, 23754), (40, 23844), (42, 23865), (43, 23898),

Gene: Tallboi\_29 Start: 24159, Stop: 24563, Start Num: 24

Candidate Starts for Tallboi\_29:

(Start: 24 @24159 has 51 MA's), (29, 24264), (30, 24279), (33, 24303), (40, 24393), (42, 24414), (43, 24447),

Gene: Tbone\_28 Start: 22745, Stop: 23149, Start Num: 24

Candidate Starts for Tbone\_28:

(Start: 24 @22745 has 51 MA's), (29, 22850), (30, 22865), (33, 22889), (40, 22979), (42, 23000), (43, 23033),

Gene: TforTroy\_30 Start: 23550, Stop: 23954, Start Num: 24

Candidate Starts for TforTroy\_30:

(5, 23226), (Start: 24 @23550 has 51 MA's), (29, 23655), (33, 23694), (40, 23784), (42, 23805),

Gene: Tian\_29 Start: 24561, Stop: 24965, Start Num: 24

Candidate Starts for Tian\_29:

(Start: 24 @24561 has 51 MA's), (29, 24666), (31, 24684), (33, 24705), (40, 24795), (42, 24816), (43, 24849),

Gene: Tuck\_32 Start: 25375, Stop: 25779, Start Num: 24  
Candidate Starts for Tuck\_32:  
(Start: 24 @25375 has 51 MA's), (29, 25480), (30, 25495), (33, 25519), (40, 25609), (42, 25630),

Gene: Turab\_28 Start: 22636, Stop: 23040, Start Num: 24  
Candidate Starts for Turab\_28:  
(Start: 24 @22636 has 51 MA's), (29, 22741), (30, 22756), (31, 22759), (33, 22780), (40, 22870), (42, 22891), (43, 22924),

Gene: Tutumahutu\_28 Start: 22720, Stop: 23124, Start Num: 24  
Candidate Starts for Tutumahutu\_28:  
(Start: 24 @22720 has 51 MA's), (29, 22825), (30, 22840), (33, 22864), (40, 22954), (42, 22975), (43, 23008),

Gene: Tweety19\_29 Start: 21882, Stop: 22286, Start Num: 24  
Candidate Starts for Tweety19\_29:  
(Start: 24 @21882 has 51 MA's), (29, 21987), (33, 22026), (40, 22116), (42, 22137),

Gene: UtzChips\_30 Start: 22940, Stop: 23320, Start Num: 21  
Candidate Starts for UtzChips\_30:  
(Start: 21 @22940 has 3 MA's), (29, 23057), (33, 23096), (40, 23186), (41, 23195), (42, 23207), (43, 23240), (50, 23300),

Gene: VResidence\_29 Start: 22877, Stop: 23281, Start Num: 24  
Candidate Starts for VResidence\_29:  
(Start: 24 @22877 has 51 MA's), (29, 22982), (33, 23021), (40, 23111), (42, 23132),

Gene: VroomVroom\_34 Start: 24175, Stop: 24591, Start Num: 18  
Candidate Starts for VroomVroom\_34:  
(Start: 18 @24175 has 3 MA's), (26, 24220), (29, 24301), (33, 24340), (36, 24364), (40, 24430), (42, 24451),

Gene: Warda\_28 Start: 22720, Stop: 23124, Start Num: 24  
Candidate Starts for Warda\_28:  
(Start: 24 @22720 has 51 MA's), (29, 22825), (30, 22840), (33, 22864), (40, 22954), (42, 22975),

Gene: Wildwest\_29 Start: 22700, Stop: 23104, Start Num: 24  
Candidate Starts for Wildwest\_29:  
(Start: 24 @22700 has 51 MA's), (29, 22805), (30, 22820), (33, 22844), (40, 22934), (42, 22955), (43, 22988),

Gene: Yang\_29 Start: 23063, Stop: 23467, Start Num: 24  
Candidate Starts for Yang\_29:  
(Start: 24 @23063 has 51 MA's), (29, 23168), (30, 23183), (31, 23186), (33, 23207), (40, 23297), (42, 23318), (43, 23351), (47, 23387),

Gene: YesChef\_28 Start: 22721, Stop: 23125, Start Num: 24  
Candidate Starts for YesChef\_28:  
(Start: 24 @22721 has 51 MA's), (29, 22826), (30, 22841), (33, 22865), (40, 22955), (42, 22976), (43, 23009),

Gene: Zeta1847\_30 Start: 22974, Stop: 23414, Start Num: 16

Candidate Starts for Zeta1847\_30:

(7, 22761), (Start: 16 @22974 has 1 MA's), (27, 23025), (29, 23103), (33, 23142), (37, 23181), (40, 23232), (42, 23253), (43, 23286),