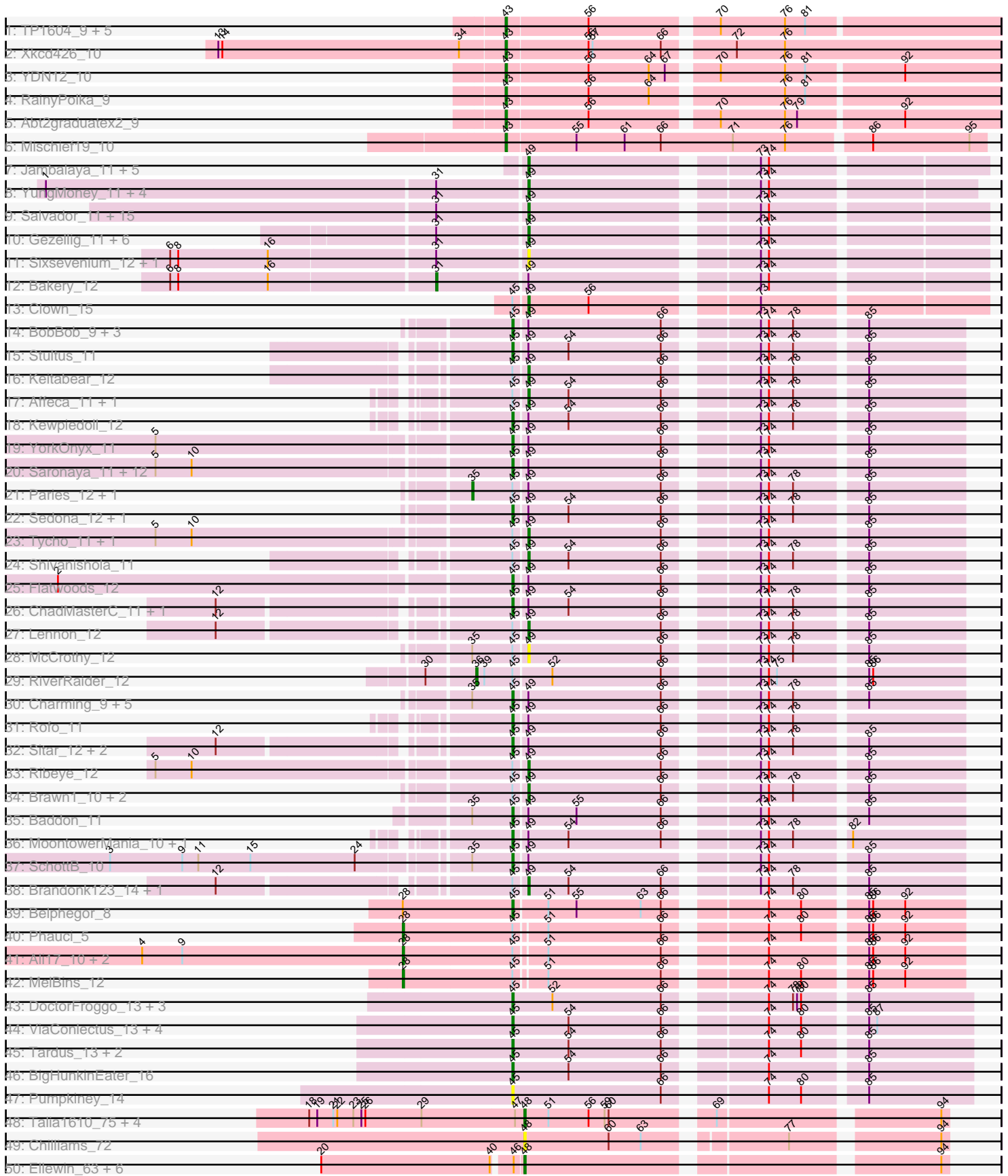
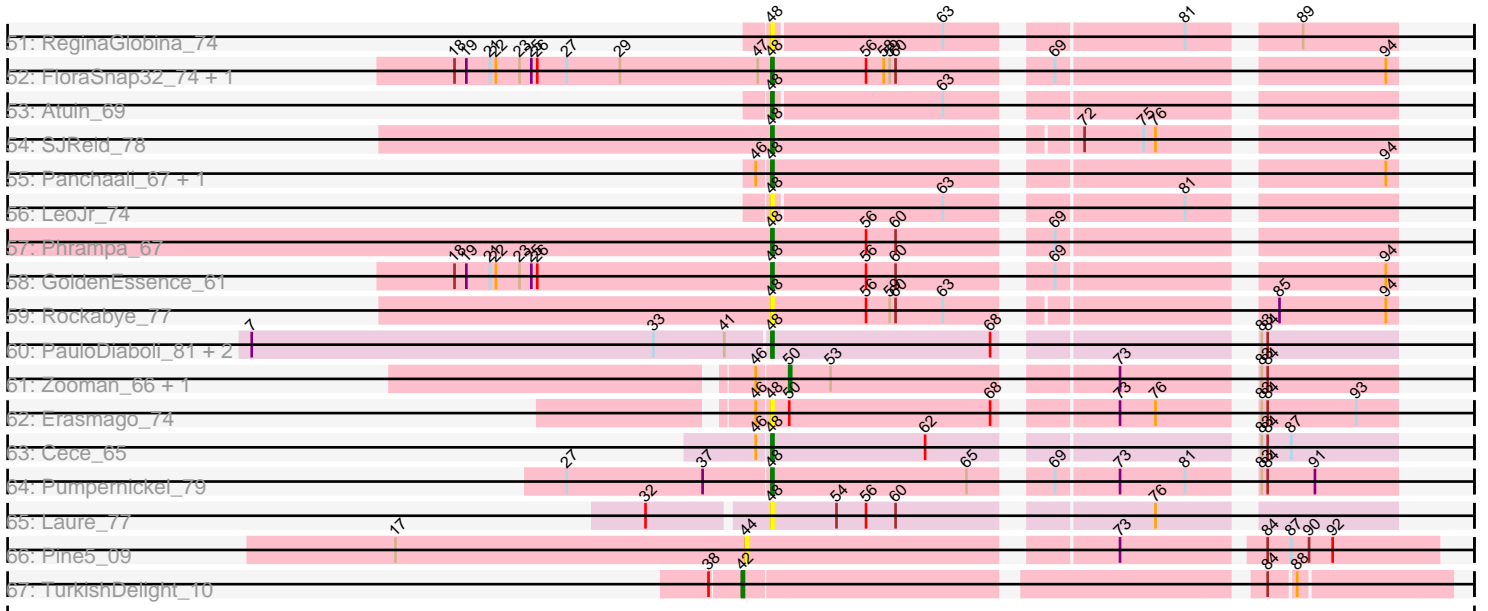


Pham 304762



Pham 304762



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 304762 Report

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

Pham number 304762 has 160 members, 24 are drafts.

Phages represented in each track:

- Track 1 : TP1604\_9, BabyGotBac\_9, Salete\_9, Maih\_9, Asis\_9, BayC\_9
- Track 2 : Xkcd426\_10
- Track 3 : YDN12\_10
- Track 4 : RainyPolka\_9
- Track 5 : Abt2graduatex2\_9
- Track 6 : Mischief19\_10
- Track 7 : Jambalaya\_11, Savbucketdawg\_11, TillyBobJoe\_11, Shinji\_11, Portcullis\_11, JohnPork\_11
- Track 8 : YungMoney\_11, RogerDodger\_12, Valary\_12, CherryCola\_12, Halo3\_12
- Track 9 : Salvador\_11, Twister6\_11, Arri\_12, Danyall\_11, Fugax\_11, VanDeWege\_12, SmokingBunny\_11, CoveyB\_11, Nubi\_11, Togo\_11, Mutzi\_11, Evamon\_11, PinkCoffee\_11, KimmyK\_11, ClamChowder\_11, Barb\_11
- Track 10 : Gezellig\_11, Phlop\_11, Sendy\_11, Egi03\_11, Wizard\_11, Fireball\_12, PullumCavea\_11
- Track 11 : Sixsevenium\_12, SharkTale\_11
- Track 12 : Bakery\_12
- Track 13 : Clown\_15
- Track 14 : BobBob\_9, Sanjuju\_10, Angelicage\_11, Jabberwocky\_10
- Track 15 : Stultus\_11
- Track 16 : Keitabear\_12
- Track 17 : Affeca\_11, McKinley\_12
- Track 18 : Kewpiedoll\_12
- Track 19 : YorkOnyx\_11
- Track 20 : Saronaya\_11, Kwobi\_11, Kroos\_11, JKSyngboy\_10, Tangerine\_11, Derg\_7, Gaea\_11, Gustavo\_11, StorminNorm\_11, Ashertheman\_11, Baumdotcom\_11, LilHam\_9, Bizzy\_12
- Track 21 : Paries\_12, Tangent\_9
- Track 22 : Sedona\_12, Bibwit\_11
- Track 23 : Tycho\_11, Stichling\_11
- Track 24 : Shivanishola\_11
- Track 25 : Flatwoods\_12
- Track 26 : ChadMasterC\_11, Barsten\_12
- Track 27 : Lennon\_12
- Track 28 : McCrothy\_12
- Track 29 : RiverRaider\_12
- Track 30 : Charming\_9, Fosterous\_9, Galadriel\_13, Kamashten\_12, Thing3\_12, Nordenberg\_6

- Track 31 : Rofo\_11
- Track 32 : Sitar\_12, FuegoCuervo\_15, Vivi2\_10
- Track 33 : Ribeye\_12
- Track 34 : Brawn1\_10, Fitzgerald\_10, Ailee\_11
- Track 35 : Baddon\_11
- Track 36 : MoontowerMania\_10, Love\_13
- Track 37 : SchottB\_10
- Track 38 : Brandonk123\_14, Geodirt\_11
- Track 39 : Belphegor\_8
- Track 40 : Phauci\_5
- Track 41 : Ali17\_10, Phinally\_12, Leonard\_12
- Track 42 : MelBins\_12
- Track 43 : DoctorFroggo\_13, Verity\_13, Zipp\_13, Delrey21\_13
- Track 44 : ViaConlectus\_13, Natkenzie\_13, Sampson\_13, Scioto\_13, Abblin\_13
- Track 45 : Tardus\_13, APunk\_14, Zitch\_14
- Track 46 : BigHunkinEater\_16
- Track 47 : Pumpkiney\_14
- Track 48 : Talia1610\_75, Racecar\_76, FrostedClock\_78, Bloom\_79, Mimi\_75
- Track 49 : Chilliams\_72
- Track 50 : Ellewin\_63, Emmetator\_67, BooTeria\_71, Artu\_67, WaddleDee\_62, DunneganBoMo\_64, KSunshine22\_69
- Track 51 : ReginaGlobina\_74
- Track 52 : FloraSnap32\_74, Patbob\_73
- Track 53 : Atuin\_69
- Track 54 : SJReid\_78
- Track 55 : Panchaali\_67, Stewart25555\_65
- Track 56 : LeoJr\_74
- Track 57 : Phrampa\_67
- Track 58 : GoldenEssence\_61
- Track 59 : Rockabye\_77
- Track 60 : PauloDiaboli\_81, Dodo\_83, A3Wally\_81
- Track 61 : Zooman\_66, Big4\_70
- Track 62 : Erasmago\_74
- Track 63 : Cece\_65
- Track 64 : Pumpernickel\_79
- Track 65 : Laure\_77
- Track 66 : Pine5\_09
- Track 67 : TurkishDelight\_10

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

The start number called the most often in the published annotations is 45, it was called in 53 of the 136 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- APunk\_14, Abblin\_13, Angelicage\_11, Ashertheman\_11, Baddon\_11, Barsten\_12, Baumdotcom\_11, Belphegor\_8, Bibwit\_11, BigHunkinEater\_16, Bizzy\_12, BobBob\_9, ChadMasterC\_11, Charming\_9, Delrey21\_13, Derg\_7, DoctorFroggo\_13, Flatwoods\_12, Fosterous\_9, FuegoCuervo\_15, Gaea\_11, Galadriel\_13, Gustavo\_11, JKSyngboy\_10, Jabberwocky\_10, Kamashten\_12, Kewpiedoll\_12, Kroos\_11,

Kwobi\_11, LilHam\_9, Love\_13, MoontowerMania\_10, Natkenzie\_13, Nordenberg\_6, Pumpkiney\_14, Rofo\_11, Sampson\_13, Sanjuju\_10, Saronaya\_11, SchottB\_10, Scioto\_13, Sedona\_12, Sitar\_12, StorminNorm\_11, Stultus\_11, Tangerine\_11, Tardus\_13, Thing3\_12, Verity\_13, ViaConlectus\_13, Vivi2\_10, YorkOnyx\_11, Zipp\_13, Zitch\_14,

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

- Affeca\_11, Ailee\_11, Ali17\_10, Brandonk123\_14, Brawn1\_10, Clown\_15, Fitzgerald\_10, Geodirt\_11, Keitabear\_12, Lennon\_12, Leonard\_12, McCrothy\_12, McKinley\_12, MelBins\_12, Paries\_12, Phauci\_5, Phinally\_12, Ribeye\_12, RiverRaider\_12, Shivanishola\_11, Stichling\_11, Tangent\_9, Tycho\_11,

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

- A3Wally\_81, Abt2graduatex2\_9, Arri\_12, Artu\_67, Asis\_9, Atuin\_69, BabyGotBac\_9, Bakery\_12, Barb\_11, BayC\_9, Big4\_70, Bloom\_79, BooTeria\_71, Cece\_65, CherryCola\_12, Chilliams\_72, ClamChowder\_11, CoveyB\_11, Danyall\_11, Dodo\_83, DunneganBoMo\_64, Egi03\_11, Ellewin\_63, Emmetator\_67, Erasmago\_74, Evamon\_11, Fireball\_12, FloraSnap32\_74, FrostedClock\_78, Fugax\_11, Gezellig\_11, GoldenEssence\_61, Halo3\_12, Jambalaya\_11, JohnPork\_11, KSunshine22\_69, KimmyK\_11, Laure\_77, LeoJr\_74, Maih\_9, Mimi\_75, Mischief19\_10, Mutzi\_11, Nubi\_11, Panchaali\_67, Patbob\_73, PauloDiaboli\_81, Phlop\_11, Phrampa\_67, Pine5\_09, PinkCoffee\_11, Portcullis\_11, PullumCavea\_11, Pumpernickel\_79, Racecar\_76, RainyPolka\_9, ReginaGlobina\_74, Rockabye\_77, RogerDodger\_12, SJReid\_78, Salete\_9, Salvador\_11, Savbucketdawg\_11, Sendy\_11, SharkTale\_11, Shinji\_11, Sixsevenium\_12, SmokingBunny\_11, Stewart25555\_65, TP1604\_9, Talia1610\_75, TillyBobJoe\_11, Togo\_11, TurkishDelight\_10, Twister6\_11, Valary\_12, VanDeWege\_12, WaddleDee\_62, Wizard\_11, Xkcd426\_10, YDN12\_10, YungMoney\_11, Zooman\_66,

### Summary by start number:

Start 28:

- Found in 6 of 160 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 5 of 136
- Called 83.3% of time when present
- Phage (with cluster) where this start called: Ali17\_10 (DE2), Leonard\_12 (DE2), MelBins\_12 (DE2), Phauci\_5 (DE2), Phinally\_12 (DE2),

Start 31:

- Found in 31 of 160 ( 19.4% ) of genes in pham
- Manual Annotations of this start: 1 of 136
- Called 3.2% of time when present
- Phage (with cluster) where this start called: Bakery\_12 (DC1),

Start 35:

- Found in 11 of 160 ( 6.9% ) of genes in pham
- Manual Annotations of this start: 2 of 136
- Called 18.2% of time when present
- Phage (with cluster) where this start called: Paries\_12 (DE1), Tangent\_9 (DE1),

Start 36:

- Found in 1 of 160 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 136

- Called 100.0% of time when present
- Phage (with cluster) where this start called: RiverRaider\_12 (DE1),

#### Start 42:

- Found in 1 of 160 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 136
- Called 100.0% of time when present
- Phage (with cluster) where this start called: TurkishDelight\_10 (singleton),

#### Start 43:

- Found in 11 of 160 ( 6.9% ) of genes in pham
- Manual Annotations of this start: 11 of 136
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abt2graduatex2\_9 (BG), Asis\_9 (BG), BabyGotBac\_9 (BG), BayC\_9 (BG), Maih\_9 (BG), Mischief19\_10 (BG), RainyPolka\_9 (BG), Salete\_9 (BG), TP1604\_9 (BG), Xkcd426\_10 (BG), YDN12\_10 (BG),

#### Start 44:

- Found in 1 of 160 ( 0.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Pine5\_09 (singleton),

#### Start 45:

- Found in 77 of 160 ( 48.1% ) of genes in pham
- Manual Annotations of this start: 53 of 136
- Called 70.1% of time when present
- Phage (with cluster) where this start called: APunk\_14 (DE4), Abblin\_13 (DE4), Angelicage\_11 (DE1), Ashertheman\_11 (DE1), Baddon\_11 (DE1), Barsten\_12 (DE1), Baumdotcom\_11 (DE1), Belphegor\_8 (DE2), Bibwit\_11 (DE1), BigHunkinEater\_16 (DE4), Bizzy\_12 (DE1), BobBob\_9 (DE1), ChadMasterC\_11 (DE1), Charming\_9 (DE1), Delrey21\_13 (DE4), Derg\_7 (DE1), DoctorFroggo\_13 (DE4), Flatwoods\_12 (DE1), Fosterous\_9 (DE1), FuegoCuervo\_15 (DE1), Gaea\_11 (DE1), Galadriel\_13 (DE1), Gustavo\_11 (DE1), JKSyngboy\_10 (DE1), Jabberwocky\_10 (DE1), Kamashten\_12 (DE1), Kewpiedoll\_12 (DE1), Kroos\_11 (DE1), Kwobi\_11 (DE1), LilHam\_9 (DE1), Love\_13 (DE1), MoontowerMania\_10 (DE1), Natkenzie\_13 (DE4), Nordenberg\_6 (DE1), Pumpkiney\_14 (DE4), Rofo\_11 (DE1), Sampson\_13 (DE4), Sanjuju\_10 (DE1), Saronaya\_11 (DE1), SchottB\_10 (DE1), Scioto\_13 (DE4), Sedona\_12 (DE1), Sitar\_12 (DE1), StorminNorm\_11 (DE1), Stultus\_11 (DE1), Tangerine\_11 (DE1), Tardus\_13 (DE4), Thing3\_12 (DE1), Verity\_13 (DE4), ViaConlectus\_13 (DE4), Vivi2\_10 (DE1), YorkOnyx\_11 (DE1), Zipp\_13 (DE4), Zitch\_14 (DE4),

#### Start 48:

- Found in 31 of 160 ( 19.4% ) of genes in pham
- Manual Annotations of this start: 17 of 136
- Called 100.0% of time when present
- Phage (with cluster) where this start called: A3Wally\_81 (GD1), Artu\_67 (FC), Atuin\_69 (FC), Bloom\_79 (FC), BooTeria\_71 (FC), Cece\_65 (GD3), Chilliams\_72 (FC), Dodo\_83 (GD1), DunneganBoMo\_64 (FC), Ellewin\_63 (FC), Emmetator\_67 (FC), Erasmago\_74 (GD2), FloraSnap32\_74 (FC), FrostedClock\_78 (FC), GoldenEssence\_61 (FC), KSunshine22\_69 (FC), Laure\_77 (UNK), LeoJr\_74 (FC), Mimi\_75 (FC), Panchaali\_67 (FC), Patbob\_73 (FC), PauloDiaboli\_81 (GD1),

Phrampa\_67 (FC), Pumpnickel\_79 (GD4), Racecar\_76 (FC), ReginaGlobina\_74 (FC), Rockabye\_77 (FC), SJReid\_78 (FC), Stewart25555\_65 (FC), Talia1610\_75 (FC), WaddleDee\_62 (FC),

Start 49:

- Found in 93 of 160 ( 58.1% ) of genes in pham
- Manual Annotations of this start: 43 of 136
- Called 54.8% of time when present
- Phage (with cluster) where this start called: Affeca\_11 (DE1), Ailee\_11 (DE1), Arri\_12 (DC1), Barb\_11 (DC1), Brandonk123\_14 (DE1), Brawn1\_10 (DE1), CherryCola\_12 (DC1), ClamChowder\_11 (DC1), Clown\_15 (DC2), CoveyB\_11 (DC1), Danyall\_11 (DC1), Egi03\_11 (DC1), Evamon\_11 (DC1), Fireball\_12 (DC1), Fitzgerald\_10 (DE1), Fugax\_11 (DC1), Geodirt\_11 (DE1), Gezellig\_11 (DC1), Halo3\_12 (DC1), Jambalaya\_11 (DC1), JohnPork\_11 (DC1), Keitabear\_12 (DE1), KimmyK\_11 (DC1), Lennon\_12 (DE1), McCrothy\_12 (DE1), McKinley\_12 (DE1), Mutzi\_11 (DC1), Nubi\_11 (DC1), Phlop\_11 (DC1), PinkCoffee\_11 (DC1), Portcullis\_11 (DC1), PullumCavea\_11 (DC1), Ribeye\_12 (DE1), RogerDodger\_12 (DC1), Salvador\_11 (DC1), Savbucketdawg\_11 (DC1), Sendy\_11 (DC1), SharkTale\_11 (DC1), Shinji\_11 (DC1), Shivanishola\_11 (DE1), Sixsevenium\_12 (DC1), SmokingBunny\_11 (DC1), Stichling\_11 (DE1), TillyBobJoe\_11 (DC1), Togo\_11 (DC1), Twister6\_11 (DC1), Tycho\_11 (DE1), Valary\_12 (DC1), VanDeWege\_12 (DC1), Wizard\_11 (DC1), YungMoney\_11 (DC1),

Start 50:

- Found in 3 of 160 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 2 of 136
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Big4\_70 (GD2), Zooman\_66 (GD2),

### Summary by clusters:

There are 13 clusters represented in this pham: GD1, singleton, BG, GD4, DE1, DE2, DE4, GD2, FC, GD3, UNK, DC2, DC1,

Info for manual annotations of cluster BG:

- Start number 43 was manually annotated 11 times for cluster BG.

Info for manual annotations of cluster DC1:

- Start number 31 was manually annotated 1 time for cluster DC1.
- Start number 49 was manually annotated 31 times for cluster DC1.

Info for manual annotations of cluster DC2:

- Start number 49 was manually annotated 1 time for cluster DC2.

Info for manual annotations of cluster DE1:

- Start number 35 was manually annotated 2 times for cluster DE1.
- Start number 36 was manually annotated 1 time for cluster DE1.
- Start number 45 was manually annotated 39 times for cluster DE1.
- Start number 49 was manually annotated 11 times for cluster DE1.

Info for manual annotations of cluster DE2:

- Start number 28 was manually annotated 5 times for cluster DE2.
- Start number 45 was manually annotated 1 time for cluster DE2.

Info for manual annotations of cluster DE4:

- Start number 45 was manually annotated 13 times for cluster DE4.

Info for manual annotations of cluster FC:

- Start number 48 was manually annotated 12 times for cluster FC.

Info for manual annotations of cluster GD1:

- Start number 48 was manually annotated 3 times for cluster GD1.

Info for manual annotations of cluster GD2:

- Start number 50 was manually annotated 2 times for cluster GD2.

Info for manual annotations of cluster GD3:

- Start number 48 was manually annotated 1 time for cluster GD3.

Info for manual annotations of cluster GD4:

- Start number 48 was manually annotated 1 time for cluster GD4.

### **Gene Information:**

Gene: A3Wally\_81 Start: 29548, Stop: 29832, Start Num: 48

Candidate Starts for A3Wally\_81:

(7, 29287), (33, 29491), (41, 29527), (Start: 48 @29548 has 17 MA's), (68, 29659), (83, 29764), (84, 29767),

Gene: APunk\_14 Start: 7109, Stop: 7426, Start Num: 45

Candidate Starts for APunk\_14:

(Start: 45 @7109 has 53 MA's), (54, 7151), (66, 7220), (74, 7283), (80, 7307), (85, 7349),

Gene: Abblin\_13 Start: 6625, Stop: 6942, Start Num: 45

Candidate Starts for Abblin\_13:

(Start: 45 @6625 has 53 MA's), (54, 6667), (66, 6736), (74, 6799), (80, 6823), (85, 6865), (87, 6871),

Gene: Abt2graduatex2\_9 Start: 7673, Stop: 8023, Start Num: 43

Candidate Starts for Abt2graduatex2\_9:

(Start: 43 @7673 has 11 MA's), (56, 7733), (70, 7820), (76, 7868), (79, 7877), (92, 7952),

Gene: Affeca\_11 Start: 6351, Stop: 6650, Start Num: 49

Candidate Starts for Affeca\_11:

(Start: 45 @6342 has 53 MA's), (Start: 49 @6351 has 43 MA's), (54, 6381), (66, 6450), (73, 6507), (74, 6513), (78, 6531), (85, 6579),

Gene: Ailee\_11 Start: 7213, Stop: 7512, Start Num: 49

Candidate Starts for Ailee\_11:

(Start: 45 @7204 has 53 MA's), (Start: 49 @7213 has 43 MA's), (66, 7312), (73, 7369), (74, 7375), (78, 7393), (85, 7441),

Gene: Ali17\_10 Start: 6021, Stop: 6407, Start Num: 28

Candidate Starts for Ali17\_10:

(4, 5826), (9, 5856), (Start: 28 @6021 has 5 MA's), (Start: 45 @6102 has 53 MA's), (51, 6123), (66, 6207), (74, 6270), (85, 6336), (86, 6339), (92, 6363),

Gene: Angelicage\_11 Start: 6771, Stop: 7079, Start Num: 45

Candidate Starts for Angelicage\_11:

(Start: 45 @6771 has 53 MA's), (Start: 49 @6780 has 43 MA's), (66, 6879), (73, 6936), (74, 6942), (78, 6960), (85, 7008),

Gene: Arri\_12 Start: 5316, Stop: 5630, Start Num: 49

Candidate Starts for Arri\_12:

(Start: 31 @5253 has 1 MA's), (Start: 49 @5316 has 43 MA's), (73, 5472), (74, 5478),

Gene: Artu\_67 Start: 27608, Stop: 27892, Start Num: 48

Candidate Starts for Artu\_67:

(20, 27464), (40, 27590), (46, 27602), (Start: 48 @27608 has 17 MA's), (94, 27887),

Gene: Ashertheman\_11 Start: 5950, Stop: 6258, Start Num: 45

Candidate Starts for Ashertheman\_11:

(5, 5698), (10, 5725), (Start: 45 @5950 has 53 MA's), (Start: 49 @5959 has 43 MA's), (66, 6058), (73, 6115), (74, 6121), (85, 6187),

Gene: Asis\_9 Start: 7730, Stop: 8080, Start Num: 43

Candidate Starts for Asis\_9:

(Start: 43 @7730 has 11 MA's), (56, 7790), (70, 7877), (76, 7925), (81, 7940),

Gene: Atuin\_69 Start: 30721, Stop: 31002, Start Num: 48

Candidate Starts for Atuin\_69:

(Start: 48 @30721 has 17 MA's), (63, 30805),

Gene: BabyGotBac\_9 Start: 7730, Stop: 8080, Start Num: 43

Candidate Starts for BabyGotBac\_9:

(Start: 43 @7730 has 11 MA's), (56, 7790), (70, 7877), (76, 7925), (81, 7940),

Gene: Baddon\_11 Start: 6660, Stop: 6968, Start Num: 45

Candidate Starts for Baddon\_11:

(Start: 35 @6630 has 2 MA's), (Start: 45 @6660 has 53 MA's), (Start: 49 @6669 has 43 MA's), (55, 6705), (66, 6768), (73, 6825), (74, 6831), (85, 6897),

Gene: Bakery\_12 Start: 4954, Stop: 5331, Start Num: 31

Candidate Starts for Bakery\_12:

(6, 4762), (8, 4768), (16, 4834), (Start: 31 @4954 has 1 MA's), (Start: 49 @5017 has 43 MA's), (73, 5173), (74, 5179),

Gene: Barb\_11 Start: 5272, Stop: 5586, Start Num: 49

Candidate Starts for Barb\_11:

(Start: 31 @5209 has 1 MA's), (Start: 49 @5272 has 43 MA's), (73, 5428), (74, 5434),

Gene: Barsten\_12 Start: 6156, Stop: 6464, Start Num: 45

Candidate Starts for Barsten\_12:

(12, 5964), (Start: 45 @6156 has 53 MA's), (Start: 49 @6165 has 43 MA's), (54, 6195), (66, 6264), (73, 6321), (74, 6327), (78, 6345), (85, 6393),

Gene: Baumdotcom\_11 Start: 5973, Stop: 6281, Start Num: 45

Candidate Starts for Baumdotcom\_11:

(5, 5721), (10, 5748), (Start: 45 @5973 has 53 MA's), (Start: 49 @5982 has 43 MA's), (66, 6081), (73, 6138), (74, 6144), (85, 6210),

Gene: BayC\_9 Start: 7730, Stop: 8080, Start Num: 43

Candidate Starts for BayC\_9:

(Start: 43 @7730 has 11 MA's), (56, 7790), (70, 7877), (76, 7925), (81, 7940),

Gene: Belphegor\_8 Start: 3927, Stop: 4235, Start Num: 45

Candidate Starts for Belphegor\_8:

(Start: 28 @3846 has 5 MA's), (Start: 45 @3927 has 53 MA's), (51, 3951), (55, 3972), (63, 4020), (66, 4035), (74, 4098), (80, 4122), (85, 4164), (86, 4167), (92, 4191),

Gene: Bibwit\_11 Start: 7027, Stop: 7335, Start Num: 45

Candidate Starts for Bibwit\_11:

(Start: 45 @7027 has 53 MA's), (Start: 49 @7036 has 43 MA's), (54, 7066), (66, 7135), (73, 7192), (74, 7198), (78, 7216), (85, 7264),

Gene: Big4\_70 Start: 28857, Stop: 29132, Start Num: 50

Candidate Starts for Big4\_70:

(46, 28842), (Start: 50 @28857 has 2 MA's), (53, 28878), (73, 29007), (83, 29064), (84, 29067),

Gene: BigHunkinEater\_16 Start: 6556, Stop: 6873, Start Num: 45

Candidate Starts for BigHunkinEater\_16:

(Start: 45 @6556 has 53 MA's), (54, 6598), (66, 6667), (74, 6730), (85, 6796),

Gene: Bizzy\_12 Start: 6147, Stop: 6455, Start Num: 45

Candidate Starts for Bizzy\_12:

(5, 5895), (10, 5922), (Start: 45 @6147 has 53 MA's), (Start: 49 @6156 has 43 MA's), (66, 6255), (73, 6312), (74, 6318), (85, 6384),

Gene: Bloom\_79 Start: 33362, Stop: 33646, Start Num: 48

Candidate Starts for Bloom\_79:

(18, 33203), (19, 33209), (21, 33221), (22, 33224), (23, 33236), (25, 33242), (26, 33245), (29, 33287), (47, 33356), (Start: 48 @33362 has 17 MA's), (51, 33380), (56, 33410), (59, 33422), (60, 33425), (69, 33491), (94, 33641),

Gene: BobBob\_9 Start: 5693, Stop: 6001, Start Num: 45

Candidate Starts for BobBob\_9:

(Start: 45 @5693 has 53 MA's), (Start: 49 @5702 has 43 MA's), (66, 5801), (73, 5858), (74, 5864), (78, 5882), (85, 5930),

Gene: BooTeria\_71 Start: 28063, Stop: 28347, Start Num: 48

Candidate Starts for BooTeria\_71:

(20, 27919), (40, 28045), (46, 28057), (Start: 48 @28063 has 17 MA's), (94, 28342),

Gene: Brandonk123\_14 Start: 6849, Stop: 7148, Start Num: 49

Candidate Starts for Brandonk123\_14:

(12, 6648), (Start: 45 @6840 has 53 MA's), (Start: 49 @6849 has 43 MA's), (54, 6879), (66, 6948), (73, 7005), (74, 7011), (78, 7029), (85, 7077),

Gene: Brawn1\_10 Start: 6532, Stop: 6831, Start Num: 49

Candidate Starts for Brawn1\_10:

(Start: 45 @6523 has 53 MA's), (Start: 49 @6532 has 43 MA's), (66, 6631), (73, 6688), (74, 6694), (78, 6712), (85, 6760),

Gene: Cece\_65 Start: 27218, Stop: 27502, Start Num: 48

Candidate Starts for Cece\_65:

(46, 27212), (Start: 48 @27218 has 17 MA's), (62, 27296), (83, 27434), (84, 27437), (87, 27449),

Gene: ChadMasterC\_11 Start: 6428, Stop: 6736, Start Num: 45

Candidate Starts for ChadMasterC\_11:

(12, 6236), (Start: 45 @6428 has 53 MA's), (Start: 49 @6437 has 43 MA's), (54, 6467), (66, 6536), (73, 6593), (74, 6599), (78, 6617), (85, 6665),

Gene: Charming\_9 Start: 5695, Stop: 6003, Start Num: 45

Candidate Starts for Charming\_9:

(Start: 35 @5665 has 2 MA's), (Start: 45 @5695 has 53 MA's), (Start: 49 @5704 has 43 MA's), (66, 5803), (73, 5860), (74, 5866), (78, 5884), (85, 5932),

Gene: CherryCola\_12 Start: 5508, Stop: 5822, Start Num: 49

Candidate Starts for CherryCola\_12:

(1, 5157), (Start: 31 @5445 has 1 MA's), (Start: 49 @5508 has 43 MA's), (73, 5664), (74, 5670),

Gene: Chilliams\_72 Start: 33749, Stop: 34030, Start Num: 48

Candidate Starts for Chilliams\_72:

(Start: 48 @33749 has 17 MA's), (60, 33812), (63, 33836), (77, 33926), (94, 34025),

Gene: ClamChowder\_11 Start: 5272, Stop: 5586, Start Num: 49

Candidate Starts for ClamChowder\_11:

(Start: 31 @5209 has 1 MA's), (Start: 49 @5272 has 43 MA's), (73, 5428), (74, 5434),

Gene: Clown\_15 Start: 8549, Stop: 8863, Start Num: 49

Candidate Starts for Clown\_15:

(Start: 45 @8540 has 53 MA's), (Start: 49 @8549 has 43 MA's), (56, 8594), (73, 8705),

Gene: CoveyB\_11 Start: 5144, Stop: 5458, Start Num: 49

Candidate Starts for CoveyB\_11:

(Start: 31 @5081 has 1 MA's), (Start: 49 @5144 has 43 MA's), (73, 5300), (74, 5306),

Gene: Danyall\_11 Start: 5144, Stop: 5458, Start Num: 49

Candidate Starts for Danyall\_11:

(Start: 31 @5081 has 1 MA's), (Start: 49 @5144 has 43 MA's), (73, 5300), (74, 5306),

Gene: Delrey21\_13 Start: 6898, Stop: 7215, Start Num: 45

Candidate Starts for Delrey21\_13:

(Start: 45 @6898 has 53 MA's), (52, 6928), (66, 7009), (74, 7072), (78, 7090), (79, 7093), (80, 7096), (85, 7138),

Gene: Derg\_7 Start: 5277, Stop: 5585, Start Num: 45

Candidate Starts for Derg\_7:

(5, 5025), (10, 5052), (Start: 45 @5277 has 53 MA's), (Start: 49 @5286 has 43 MA's), (66, 5385), (73, 5442), (74, 5448), (85, 5514),

Gene: DoctorFroggo\_13 Start: 6898, Stop: 7215, Start Num: 45

Candidate Starts for DoctorFroggo\_13:

(Start: 45 @6898 has 53 MA's), (52, 6928), (66, 7009), (74, 7072), (78, 7090), (79, 7093), (80, 7096), (85, 7138),

Gene: Dodo\_83 Start: 29870, Stop: 30154, Start Num: 48

Candidate Starts for Dodo\_83:

(7, 29609), (33, 29813), (41, 29849), (Start: 48 @29870 has 17 MA's), (68, 29981), (83, 30086), (84, 30089),

Gene: DunneganBoMo\_64 Start: 27488, Stop: 27772, Start Num: 48

Candidate Starts for DunneganBoMo\_64:

(20, 27344), (40, 27470), (46, 27482), (Start: 48 @27488 has 17 MA's), (94, 27767),

Gene: Egi03\_11 Start: 5251, Stop: 5565, Start Num: 49

Candidate Starts for Egi03\_11:

(Start: 31 @5188 has 1 MA's), (Start: 49 @5251 has 43 MA's), (73, 5407), (74, 5413),

Gene: Ellewin\_63 Start: 27215, Stop: 27499, Start Num: 48

Candidate Starts for Ellewin\_63:

(20, 27071), (40, 27197), (46, 27209), (Start: 48 @27215 has 17 MA's), (94, 27494),

Gene: Emmetator\_67 Start: 28235, Stop: 28519, Start Num: 48

Candidate Starts for Emmetator\_67:

(20, 28091), (40, 28217), (46, 28229), (Start: 48 @28235 has 17 MA's), (94, 28514),

Gene: Erasmago\_74 Start: 28535, Stop: 28819, Start Num: 48

Candidate Starts for Erasmago\_74:

(46, 28529), (Start: 48 @28535 has 17 MA's), (Start: 50 @28544 has 2 MA's), (68, 28646), (73, 28694), (76, 28712), (83, 28751), (84, 28754), (93, 28799),

Gene: Evamon\_11 Start: 5125, Stop: 5439, Start Num: 49

Candidate Starts for Evamon\_11:

(Start: 31 @5062 has 1 MA's), (Start: 49 @5125 has 43 MA's), (73, 5281), (74, 5287),

Gene: Fireball\_12 Start: 5251, Stop: 5565, Start Num: 49

Candidate Starts for Fireball\_12:

(Start: 31 @5188 has 1 MA's), (Start: 49 @5251 has 43 MA's), (73, 5407), (74, 5413),

Gene: Fitzgerald\_10 Start: 6630, Stop: 6929, Start Num: 49

Candidate Starts for Fitzgerald\_10:

(Start: 45 @6621 has 53 MA's), (Start: 49 @6630 has 43 MA's), (66, 6729), (73, 6786), (74, 6792), (78, 6810), (85, 6858),

Gene: Flatwoods\_12 Start: 6151, Stop: 6459, Start Num: 45

Candidate Starts for Flatwoods\_12:

(2, 5824), (Start: 45 @6151 has 53 MA's), (Start: 49 @6160 has 43 MA's), (66, 6259), (73, 6316), (74, 6322), (85, 6388),

Gene: FloraSnap32\_74 Start: 31817, Stop: 32101, Start Num: 48

Candidate Starts for FloraSnap32\_74:

(18, 31658), (19, 31664), (21, 31676), (22, 31679), (23, 31691), (25, 31697), (26, 31700), (27, 31715), (29, 31742), (47, 31811), (Start: 48 @31817 has 17 MA's), (56, 31865), (58, 31874), (59, 31877), (60, 31880), (69, 31946), (94, 32096),

Gene: Fosterous\_9 Start: 5693, Stop: 6001, Start Num: 45

Candidate Starts for Fosterous\_9:

(Start: 35 @5663 has 2 MA's), (Start: 45 @5693 has 53 MA's), (Start: 49 @5702 has 43 MA's), (66, 5801), (73, 5858), (74, 5864), (78, 5882), (85, 5930),

Gene: FrostedClock\_78 Start: 32850, Stop: 33134, Start Num: 48

Candidate Starts for FrostedClock\_78:

(18, 32691), (19, 32697), (21, 32709), (22, 32712), (23, 32724), (25, 32730), (26, 32733), (29, 32775), (47, 32844), (Start: 48 @32850 has 17 MA's), (51, 32868), (56, 32898), (59, 32910), (60, 32913), (69, 32979), (94, 33129),

Gene: FuegoCuervo\_15 Start: 6443, Stop: 6751, Start Num: 45

Candidate Starts for FuegoCuervo\_15:

(12, 6251), (Start: 45 @6443 has 53 MA's), (Start: 49 @6452 has 43 MA's), (66, 6551), (73, 6608), (74, 6614), (78, 6632), (85, 6680),

Gene: Fugax\_11 Start: 5272, Stop: 5586, Start Num: 49

Candidate Starts for Fugax\_11:

(Start: 31 @5209 has 1 MA's), (Start: 49 @5272 has 43 MA's), (73, 5428), (74, 5434),

Gene: Gaea\_11 Start: 5953, Stop: 6261, Start Num: 45

Candidate Starts for Gaea\_11:

(5, 5701), (10, 5728), (Start: 45 @5953 has 53 MA's), (Start: 49 @5962 has 43 MA's), (66, 6061), (73, 6118), (74, 6124), (85, 6190),

Gene: Galadriel\_13 Start: 6461, Stop: 6769, Start Num: 45

Candidate Starts for Galadriel\_13:

(Start: 35 @6431 has 2 MA's), (Start: 45 @6461 has 53 MA's), (Start: 49 @6470 has 43 MA's), (66, 6569), (73, 6626), (74, 6632), (78, 6650), (85, 6698),

Gene: Geodirt\_11 Start: 6477, Stop: 6776, Start Num: 49

Candidate Starts for Geodirt\_11:

(12, 6276), (Start: 45 @6468 has 53 MA's), (Start: 49 @6477 has 43 MA's), (54, 6507), (66, 6576), (73, 6633), (74, 6639), (78, 6657), (85, 6705),

Gene: Gezellig\_11 Start: 5251, Stop: 5565, Start Num: 49

Candidate Starts for Gezellig\_11:

(Start: 31 @5188 has 1 MA's), (Start: 49 @5251 has 43 MA's), (73, 5407), (74, 5413),

Gene: GoldenEssence\_61 Start: 27155, Stop: 27439, Start Num: 48

Candidate Starts for GoldenEssence\_61:

(18, 26996), (19, 27002), (21, 27014), (22, 27017), (23, 27029), (25, 27035), (26, 27038), (Start: 48 @27155 has 17 MA's), (56, 27203), (60, 27218), (69, 27284), (94, 27434),

Gene: Gustavo\_11 Start: 5950, Stop: 6258, Start Num: 45

Candidate Starts for Gustavo\_11:

(5, 5698), (10, 5725), (Start: 45 @5950 has 53 MA's), (Start: 49 @5959 has 43 MA's), (66, 6058), (73, 6115), (74, 6121), (85, 6187),

Gene: Halo3\_12 Start: 5583, Stop: 5888, Start Num: 49

Candidate Starts for Halo3\_12:

(1, 5232), (Start: 31 @5520 has 1 MA's), (Start: 49 @5583 has 43 MA's), (73, 5739), (74, 5745),

Gene: JKSyngboy\_10 Start: 6461, Stop: 6769, Start Num: 45

Candidate Starts for JKSyngboy\_10:

(5, 6209), (10, 6236), (Start: 45 @6461 has 53 MA's), (Start: 49 @6470 has 43 MA's), (66, 6569), (73, 6626), (74, 6632), (85, 6698),

Gene: Jabberwocky\_10 Start: 6623, Stop: 6931, Start Num: 45

Candidate Starts for Jabberwocky\_10:

(Start: 45 @6623 has 53 MA's), (Start: 49 @6632 has 43 MA's), (66, 6731), (73, 6788), (74, 6794), (78, 6812), (85, 6860),

Gene: Jambalaya\_11 Start: 4956, Stop: 5270, Start Num: 49

Candidate Starts for Jambalaya\_11:

(Start: 49 @4956 has 43 MA's), (73, 5112), (74, 5118),

Gene: JohnPork\_11 Start: 5204, Stop: 5518, Start Num: 49

Candidate Starts for JohnPork\_11:

(Start: 49 @5204 has 43 MA's), (73, 5360), (74, 5366),

Gene: KSunshine22\_69 Start: 28755, Stop: 29039, Start Num: 48

Candidate Starts for KSunshine22\_69:

(20, 28611), (40, 28737), (46, 28749), (Start: 48 @28755 has 17 MA's), (94, 29034),

Gene: Kamashten\_12 Start: 6782, Stop: 7090, Start Num: 45

Candidate Starts for Kamashten\_12:

(Start: 35 @6752 has 2 MA's), (Start: 45 @6782 has 53 MA's), (Start: 49 @6791 has 43 MA's), (66, 6890), (73, 6947), (74, 6953), (78, 6971), (85, 7019),

Gene: Keitabear\_12 Start: 7843, Stop: 8142, Start Num: 49

Candidate Starts for Keitabear\_12:

(Start: 45 @7834 has 53 MA's), (Start: 49 @7843 has 43 MA's), (66, 7942), (73, 7999), (74, 8005), (78, 8023), (85, 8071),

Gene: Kewpiedoll\_12 Start: 6184, Stop: 6492, Start Num: 45

Candidate Starts for Kewpiedoll\_12:

(Start: 45 @6184 has 53 MA's), (Start: 49 @6193 has 43 MA's), (54, 6223), (66, 6292), (73, 6349), (74, 6355), (78, 6373), (85, 6421),

Gene: KimmyK\_11 Start: 5272, Stop: 5586, Start Num: 49

Candidate Starts for KimmyK\_11:

(Start: 31 @5209 has 1 MA's), (Start: 49 @5272 has 43 MA's), (73, 5428), (74, 5434),

Gene: Kroos\_11 Start: 6114, Stop: 6422, Start Num: 45

Candidate Starts for Kroos\_11:

(5, 5862), (10, 5889), (Start: 45 @6114 has 53 MA's), (Start: 49 @6123 has 43 MA's), (66, 6222), (73, 6279), (74, 6285), (85, 6351),

Gene: Kwobi\_11 Start: 5953, Stop: 6261, Start Num: 45

Candidate Starts for Kwobi\_11:

(5, 5701), (10, 5728), (Start: 45 @5953 has 53 MA's), (Start: 49 @5962 has 43 MA's), (66, 6061), (73, 6118), (74, 6124), (85, 6190),

Gene: Laure\_77 Start: 33462, Stop: 33746, Start Num: 48

Candidate Starts for Laure\_77:

(32, 33405), (Start: 48 @33462 has 17 MA's), (54, 33495), (56, 33510), (60, 33525), (76, 33639),

Gene: Lennon\_12 Start: 7052, Stop: 7351, Start Num: 49

Candidate Starts for Lennon\_12:

(12, 6851), (Start: 45 @7043 has 53 MA's), (Start: 49 @7052 has 43 MA's), (66, 7151), (73, 7208), (74, 7214), (78, 7232), (85, 7280),

Gene: LeoJr\_74 Start: 30861, Stop: 31142, Start Num: 48

Candidate Starts for LeoJr\_74:

(Start: 48 @30861 has 17 MA's), (63, 30945), (81, 31050),

Gene: Leonard\_12 Start: 6673, Stop: 7059, Start Num: 28

Candidate Starts for Leonard\_12:

(4, 6478), (9, 6508), (Start: 28 @6673 has 5 MA's), (Start: 45 @6754 has 53 MA's), (51, 6775), (66, 6859), (74, 6922), (85, 6988), (86, 6991), (92, 7015),

Gene: LilHam\_9 Start: 5269, Stop: 5577, Start Num: 45

Candidate Starts for LilHam\_9:

(5, 5017), (10, 5044), (Start: 45 @5269 has 53 MA's), (Start: 49 @5278 has 43 MA's), (66, 5377), (73, 5434), (74, 5440), (85, 5506),

Gene: Love\_13 Start: 6772, Stop: 7080, Start Num: 45

Candidate Starts for Love\_13:

(Start: 45 @6772 has 53 MA's), (Start: 49 @6781 has 43 MA's), (54, 6811), (66, 6880), (73, 6937), (74, 6943), (78, 6961), (82, 6997),

Gene: Maih\_9 Start: 7729, Stop: 8079, Start Num: 43

Candidate Starts for Maih\_9:

(Start: 43 @7729 has 11 MA's), (56, 7789), (70, 7876), (76, 7924), (81, 7939),

Gene: McCrothy\_12 Start: 6647, Stop: 6946, Start Num: 49

Candidate Starts for McCrothy\_12:

(Start: 35 @6608 has 2 MA's), (Start: 45 @6638 has 53 MA's), (Start: 49 @6647 has 43 MA's), (66, 6746), (73, 6803), (74, 6809), (78, 6827), (85, 6875),

Gene: McKinley\_12 Start: 7140, Stop: 7439, Start Num: 49

Candidate Starts for McKinley\_12:

(Start: 45 @7131 has 53 MA's), (Start: 49 @7140 has 43 MA's), (54, 7170), (66, 7239), (73, 7296), (74, 7302), (78, 7320), (85, 7368),

Gene: MelBins\_12 Start: 6449, Stop: 6835, Start Num: 28

Candidate Starts for MelBins\_12:

(Start: 28 @6449 has 5 MA's), (Start: 45 @6530 has 53 MA's), (51, 6551), (66, 6635), (74, 6698), (80, 6722), (85, 6764), (86, 6767), (92, 6791),

Gene: Mimi\_75 Start: 32709, Stop: 32993, Start Num: 48

Candidate Starts for Mimi\_75:

(18, 32550), (19, 32556), (21, 32568), (22, 32571), (23, 32583), (25, 32589), (26, 32592), (29, 32634), (47, 32703), (Start: 48 @32709 has 17 MA's), (51, 32727), (56, 32757), (59, 32769), (60, 32772), (69, 32838), (94, 32988),

Gene: Mischief19\_10 Start: 9272, Stop: 9619, Start Num: 43

Candidate Starts for Mischief19\_10:

(Start: 43 @9272 has 11 MA's), (55, 9323), (61, 9359), (66, 9386), (71, 9440), (76, 9479), (86, 9536), (95, 9608),

Gene: MoontowerMania\_10 Start: 6171, Stop: 6479, Start Num: 45

Candidate Starts for MoontowerMania\_10:

(Start: 45 @6171 has 53 MA's), (Start: 49 @6180 has 43 MA's), (54, 6210), (66, 6279), (73, 6336), (74, 6342), (78, 6360), (82, 6396),

Gene: Mutzi\_11 Start: 5144, Stop: 5458, Start Num: 49

Candidate Starts for Mutzi\_11:

(Start: 31 @5081 has 1 MA's), (Start: 49 @5144 has 43 MA's), (73, 5300), (74, 5306),

Gene: Natkenzie\_13 Start: 6625, Stop: 6942, Start Num: 45

Candidate Starts for Natkenzie\_13:

(Start: 45 @6625 has 53 MA's), (54, 6667), (66, 6736), (74, 6799), (80, 6823), (85, 6865), (87, 6871),

Gene: Nordenberg\_6 Start: 4315, Stop: 4623, Start Num: 45

Candidate Starts for Nordenberg\_6:

(Start: 35 @4285 has 2 MA's), (Start: 45 @4315 has 53 MA's), (Start: 49 @4324 has 43 MA's), (66, 4423), (73, 4480), (74, 4486), (78, 4504), (85, 4552),

Gene: Nubi\_11 Start: 5144, Stop: 5449, Start Num: 49

Candidate Starts for Nubi\_11:

(Start: 31 @5081 has 1 MA's), (Start: 49 @5144 has 43 MA's), (73, 5300), (74, 5306),

Gene: Panchaali\_67 Start: 28341, Stop: 28625, Start Num: 48

Candidate Starts for Panchaali\_67:

(46, 28335), (Start: 48 @28341 has 17 MA's), (94, 28620),

Gene: Paries\_12 Start: 6433, Stop: 6771, Start Num: 35

Candidate Starts for Paries\_12:

(Start: 35 @6433 has 2 MA's), (Start: 45 @6463 has 53 MA's), (Start: 49 @6472 has 43 MA's), (66, 6571), (73, 6628), (74, 6634), (78, 6652), (85, 6700),

Gene: Patbob\_73 Start: 33002, Stop: 33286, Start Num: 48

Candidate Starts for Patbob\_73:

(18, 32843), (19, 32849), (21, 32861), (22, 32864), (23, 32876), (25, 32882), (26, 32885), (27, 32900), (29, 32927), (47, 32996), (Start: 48 @33002 has 17 MA's), (56, 33050), (58, 33059), (59, 33062), (60, 33065), (69, 33131), (94, 33281),

Gene: PauloDiaboli\_81 Start: 28905, Stop: 29189, Start Num: 48

Candidate Starts for PauloDiaboli\_81:

(7, 28644), (33, 28848), (41, 28884), (Start: 48 @28905 has 17 MA's), (68, 29016), (83, 29121), (84, 29124),

Gene: Phauci\_5 Start: 3202, Stop: 3588, Start Num: 28

Candidate Starts for Phauci\_5:

(Start: 28 @3202 has 5 MA's), (Start: 45 @3283 has 53 MA's), (51, 3304), (66, 3388), (74, 3451), (80, 3475), (85, 3517), (86, 3520), (92, 3544),

Gene: Phinally\_12 Start: 6670, Stop: 7056, Start Num: 28

Candidate Starts for Phinally\_12:

(4, 6475), (9, 6505), (Start: 28 @6670 has 5 MA's), (Start: 45 @6751 has 53 MA's), (51, 6772), (66, 6856), (74, 6919), (85, 6985), (86, 6988), (92, 7012),

Gene: Phlop\_11 Start: 5251, Stop: 5565, Start Num: 49

Candidate Starts for Phlop\_11:

(Start: 31 @5188 has 1 MA's), (Start: 49 @5251 has 43 MA's), (73, 5407), (74, 5413),

Gene: Phrampa\_67 Start: 30028, Stop: 30312, Start Num: 48

Candidate Starts for Phrampa\_67:

(Start: 48 @30028 has 17 MA's), (56, 30076), (60, 30091), (69, 30157),

Gene: Pine5\_09 Start: 5622, Stop: 5945, Start Num: 44

Candidate Starts for Pine5\_09:

(17, 5445), (44, 5622), (73, 5793), (84, 5859), (87, 5871), (90, 5880), (92, 5892),

Gene: PinkCoffee\_11 Start: 5281, Stop: 5595, Start Num: 49

Candidate Starts for PinkCoffee\_11:

(Start: 31 @5218 has 1 MA's), (Start: 49 @5281 has 43 MA's), (73, 5437), (74, 5443),

Gene: Portcullis\_11 Start: 5204, Stop: 5518, Start Num: 49

Candidate Starts for Portcullis\_11:

(Start: 49 @5204 has 43 MA's), (73, 5360), (74, 5366),

Gene: PullumCavea\_11 Start: 5251, Stop: 5565, Start Num: 49

Candidate Starts for PullumCavea\_11:

(Start: 31 @5188 has 1 MA's), (Start: 49 @5251 has 43 MA's), (73, 5407), (74, 5413),

Gene: Pumpernickel\_79 Start: 31092, Stop: 31376, Start Num: 48

Candidate Starts for Pumpernickel\_79:

(27, 30990), (37, 31059), (Start: 48 @31092 has 17 MA's), (65, 31191), (69, 31221), (73, 31251), (81, 31284), (83, 31308), (84, 31311), (91, 31335),

Gene: Pumpkiney\_14 Start: 5859, Stop: 6176, Start Num: 45

Candidate Starts for Pumpkiney\_14:

(Start: 45 @5859 has 53 MA's), (66, 5970), (74, 6033), (80, 6057), (85, 6099),

Gene: Racecar\_76 Start: 33362, Stop: 33646, Start Num: 48

Candidate Starts for Racecar\_76:

(18, 33203), (19, 33209), (21, 33221), (22, 33224), (23, 33236), (25, 33242), (26, 33245), (29, 33287), (47, 33356), (Start: 48 @33362 has 17 MA's), (51, 33380), (56, 33410), (59, 33422), (60, 33425), (69, 33491), (94, 33641),

Gene: RainyPolka\_9 Start: 7682, Stop: 8032, Start Num: 43

Candidate Starts for RainyPolka\_9:

(Start: 43 @7682 has 11 MA's), (56, 7742), (64, 7787), (76, 7877), (81, 7892),

Gene: ReginaGlobina\_74 Start: 31418, Stop: 31699, Start Num: 48

Candidate Starts for ReginaGlobina\_74:

(Start: 48 @31418 has 17 MA's), (63, 31502), (81, 31607), (89, 31652),

Gene: Ribeye\_12 Start: 6157, Stop: 6456, Start Num: 49

Candidate Starts for Ribeye\_12:

(5, 5896), (10, 5923), (Start: 45 @6148 has 53 MA's), (Start: 49 @6157 has 43 MA's), (66, 6256), (73, 6313), (74, 6319), (85, 6385),

Gene: RiverRaider\_12 Start: 5677, Stop: 6012, Start Num: 36

Candidate Starts for RiverRaider\_12:

(30, 5644), (Start: 36 @5677 has 1 MA's), (39, 5683), (Start: 45 @5704 has 53 MA's), (52, 5731), (66, 5812), (73, 5869), (74, 5875), (75, 5881), (85, 5941), (86, 5944),

Gene: Rockabye\_77 Start: 34104, Stop: 34385, Start Num: 48

Candidate Starts for Rockabye\_77:

(Start: 48 @34104 has 17 MA's), (56, 34152), (59, 34164), (60, 34167), (63, 34191), (85, 34326), (94, 34380),

Gene: Rofo\_11 Start: 6703, Stop: 7011, Start Num: 45

Candidate Starts for Rofo\_11:

(Start: 45 @6703 has 53 MA's), (Start: 49 @6712 has 43 MA's), (66, 6811), (73, 6868), (74, 6874), (78, 6892),

Gene: RogerDodger\_12 Start: 5508, Stop: 5822, Start Num: 49

Candidate Starts for RogerDodger\_12:

(1, 5157), (Start: 31 @5445 has 1 MA's), (Start: 49 @5508 has 43 MA's), (73, 5664), (74, 5670),

Gene: SJReid\_78 Start: 34582, Stop: 34863, Start Num: 48

Candidate Starts for SJReid\_78:

(Start: 48 @34582 has 17 MA's), (72, 34720), (75, 34750), (76, 34756),

Gene: Salete\_9 Start: 7730, Stop: 8080, Start Num: 43

Candidate Starts for Salete\_9:

(Start: 43 @7730 has 11 MA's), (56, 7790), (70, 7877), (76, 7925), (81, 7940),

Gene: Salvador\_11 Start: 5123, Stop: 5437, Start Num: 49

Candidate Starts for Salvador\_11:

(Start: 31 @5060 has 1 MA's), (Start: 49 @5123 has 43 MA's), (73, 5279), (74, 5285),

Gene: Sampson\_13 Start: 6570, Stop: 6887, Start Num: 45

Candidate Starts for Sampson\_13:

(Start: 45 @6570 has 53 MA's), (54, 6612), (66, 6681), (74, 6744), (80, 6768), (85, 6810), (87, 6816),

Gene: Sanjuju\_10 Start: 6661, Stop: 6969, Start Num: 45

Candidate Starts for Sanjuju\_10:

(Start: 45 @6661 has 53 MA's), (Start: 49 @6670 has 43 MA's), (66, 6769), (73, 6826), (74, 6832), (78, 6850), (85, 6898),

Gene: Saronaya\_11 Start: 5950, Stop: 6258, Start Num: 45

Candidate Starts for Saronaya\_11:

(5, 5698), (10, 5725), (Start: 45 @5950 has 53 MA's), (Start: 49 @5959 has 43 MA's), (66, 6058), (73, 6115), (74, 6121), (85, 6187),

Gene: Savbucketdawg\_11 Start: 4956, Stop: 5270, Start Num: 49

Candidate Starts for Savbucketdawg\_11:

(Start: 49 @4956 has 43 MA's), (73, 5112), (74, 5118),

Gene: SchottB\_10 Start: 6126, Stop: 6434, Start Num: 45

Candidate Starts for SchottB\_10:

(3, 5841), (9, 5895), (11, 5907), (15, 5946), (24, 6024), (Start: 35 @6096 has 2 MA's), (Start: 45 @6126 has 53 MA's), (Start: 49 @6135 has 43 MA's), (73, 6291), (74, 6297), (85, 6363),

Gene: Scioto\_13 Start: 6625, Stop: 6942, Start Num: 45

Candidate Starts for Scioto\_13:

(Start: 45 @6625 has 53 MA's), (54, 6667), (66, 6736), (74, 6799), (80, 6823), (85, 6865), (87, 6871),

Gene: Sedona\_12 Start: 7669, Stop: 7977, Start Num: 45

Candidate Starts for Sedona\_12:

(Start: 45 @7669 has 53 MA's), (Start: 49 @7678 has 43 MA's), (54, 7708), (66, 7777), (73, 7834), (74, 7840), (78, 7858), (85, 7906),

Gene: Sendy\_11 Start: 5251, Stop: 5565, Start Num: 49

Candidate Starts for Sendy\_11:

(Start: 31 @5188 has 1 MA's), (Start: 49 @5251 has 43 MA's), (73, 5407), (74, 5413),

Gene: SharkTale\_11 Start: 5865, Stop: 6179, Start Num: 49

Candidate Starts for SharkTale\_11:

(6, 5610), (8, 5616), (16, 5682), (Start: 31 @5802 has 1 MA's), (Start: 49 @5865 has 43 MA's), (73, 6021), (74, 6027),

Gene: Shinji\_11 Start: 5145, Stop: 5459, Start Num: 49

Candidate Starts for Shinji\_11:

(Start: 49 @5145 has 43 MA's), (73, 5301), (74, 5307),

Gene: Shivanishola\_11 Start: 6886, Stop: 7185, Start Num: 49

Candidate Starts for Shivanishola\_11:

(Start: 45 @6877 has 53 MA's), (Start: 49 @6886 has 43 MA's), (54, 6916), (66, 6985), (73, 7042), (74, 7048), (78, 7066), (85, 7114),

Gene: Sitar\_12 Start: 7043, Stop: 7351, Start Num: 45

Candidate Starts for Sitar\_12:

(12, 6851), (Start: 45 @7043 has 53 MA's), (Start: 49 @7052 has 43 MA's), (66, 7151), (73, 7208), (74, 7214), (78, 7232), (85, 7280),

Gene: Sixsevenium\_12 Start: 5017, Stop: 5331, Start Num: 49

Candidate Starts for Sixsevenium\_12:

(6, 4762), (8, 4768), (16, 4834), (Start: 31 @4954 has 1 MA's), (Start: 49 @5017 has 43 MA's), (73, 5173), (74, 5179),

Gene: SmokingBunny\_11 Start: 5123, Stop: 5437, Start Num: 49

Candidate Starts for SmokingBunny\_11:

(Start: 31 @5060 has 1 MA's), (Start: 49 @5123 has 43 MA's), (73, 5279), (74, 5285),

Gene: Stewart25555\_65 Start: 27748, Stop: 28032, Start Num: 48

Candidate Starts for Stewart25555\_65:

(46, 27742), (Start: 48 @27748 has 17 MA's), (94, 28027),

Gene: Stichling\_11 Start: 5346, Stop: 5645, Start Num: 49

Candidate Starts for Stichling\_11:

(5, 5085), (10, 5112), (Start: 45 @5337 has 53 MA's), (Start: 49 @5346 has 43 MA's), (66, 5445), (73, 5502), (74, 5508), (85, 5574),

Gene: StorminNorm\_11 Start: 5953, Stop: 6261, Start Num: 45

Candidate Starts for StorminNorm\_11:

(5, 5701), (10, 5728), (Start: 45 @5953 has 53 MA's), (Start: 49 @5962 has 43 MA's), (66, 6061), (73, 6118), (74, 6124), (85, 6190),

Gene: Stultus\_11 Start: 6867, Stop: 7175, Start Num: 45

Candidate Starts for Stultus\_11:

(Start: 45 @6867 has 53 MA's), (Start: 49 @6876 has 43 MA's), (54, 6906), (66, 6975), (73, 7032), (74, 7038), (78, 7056), (85, 7104),

Gene: TP1604\_9 Start: 7730, Stop: 8080, Start Num: 43

Candidate Starts for TP1604\_9:

(Start: 43 @7730 has 11 MA's), (56, 7790), (70, 7877), (76, 7925), (81, 7940),

Gene: Talia1610\_75 Start: 32727, Stop: 33011, Start Num: 48

Candidate Starts for Talia1610\_75:

(18, 32568), (19, 32574), (21, 32586), (22, 32589), (23, 32601), (25, 32607), (26, 32610), (29, 32652), (47, 32721), (Start: 48 @32727 has 17 MA's), (51, 32745), (56, 32775), (59, 32787), (60, 32790), (69, 32856), (94, 33006),

Gene: Tangent\_9 Start: 5665, Stop: 6003, Start Num: 35

Candidate Starts for Tangent\_9:

(Start: 35 @5665 has 2 MA's), (Start: 45 @5695 has 53 MA's), (Start: 49 @5704 has 43 MA's), (66, 5803), (73, 5860), (74, 5866), (78, 5884), (85, 5932),

Gene: Tangerine\_11 Start: 5962, Stop: 6270, Start Num: 45

Candidate Starts for Tangerine\_11:

(5, 5710), (10, 5737), (Start: 45 @5962 has 53 MA's), (Start: 49 @5971 has 43 MA's), (66, 6070), (73, 6127), (74, 6133), (85, 6199),

Gene: Tardus\_13 Start: 5665, Stop: 5982, Start Num: 45

Candidate Starts for Tardus\_13:

(Start: 45 @5665 has 53 MA's), (54, 5707), (66, 5776), (74, 5839), (80, 5863), (85, 5905),

Gene: Thing3\_12 Start: 6782, Stop: 7090, Start Num: 45

Candidate Starts for Thing3\_12:

(Start: 35 @6752 has 2 MA's), (Start: 45 @6782 has 53 MA's), (Start: 49 @6791 has 43 MA's), (66, 6890), (73, 6947), (74, 6953), (78, 6971), (85, 7019),

Gene: TillyBobJoe\_11 Start: 4959, Stop: 5273, Start Num: 49

Candidate Starts for TillyBobJoe\_11:

(Start: 49 @4959 has 43 MA's), (73, 5115), (74, 5121),

Gene: Togo\_11 Start: 5123, Stop: 5437, Start Num: 49

Candidate Starts for Togo\_11:

(Start: 31 @5060 has 1 MA's), (Start: 49 @5123 has 43 MA's), (73, 5279), (74, 5285),

Gene: TurkishDelight\_10 Start: 6065, Stop: 6391, Start Num: 42

Candidate Starts for TurkishDelight\_10:

(38, 6050), (Start: 42 @6065 has 1 MA's), (84, 6305), (88, 6317),

Gene: Twister6\_11 Start: 5055, Stop: 5369, Start Num: 49

Candidate Starts for Twister6\_11:

(Start: 31 @4992 has 1 MA's), (Start: 49 @5055 has 43 MA's), (73, 5211), (74, 5217),

Gene: Tycho\_11 Start: 5971, Stop: 6270, Start Num: 49

Candidate Starts for Tycho\_11:

(5, 5710), (10, 5737), (Start: 45 @5962 has 53 MA's), (Start: 49 @5971 has 43 MA's), (66, 6070), (73, 6127), (74, 6133), (85, 6199),

Gene: Valary\_12 Start: 5508, Stop: 5822, Start Num: 49

Candidate Starts for Valary\_12:

(1, 5157), (Start: 31 @5445 has 1 MA's), (Start: 49 @5508 has 43 MA's), (73, 5664), (74, 5670),

Gene: VanDeWege\_12 Start: 5436, Stop: 5750, Start Num: 49

Candidate Starts for VanDeWege\_12:

(Start: 31 @5373 has 1 MA's), (Start: 49 @5436 has 43 MA's), (73, 5592), (74, 5598),

Gene: Verity\_13 Start: 6898, Stop: 7215, Start Num: 45

Candidate Starts for Verity\_13:

(Start: 45 @6898 has 53 MA's), (52, 6928), (66, 7009), (74, 7072), (78, 7090), (79, 7093), (80, 7096), (85, 7138),

Gene: ViaConlectus\_13 Start: 6625, Stop: 6942, Start Num: 45

Candidate Starts for ViaConlectus\_13:

(Start: 45 @6625 has 53 MA's), (54, 6667), (66, 6736), (74, 6799), (80, 6823), (85, 6865), (87, 6871),

Gene: Vivi2\_10 Start: 5856, Stop: 6164, Start Num: 45

Candidate Starts for Vivi2\_10:

(12, 5664), (Start: 45 @5856 has 53 MA's), (Start: 49 @5865 has 43 MA's), (66, 5964), (73, 6021), (74, 6027), (78, 6045), (85, 6093),

Gene: WaddleDee\_62 Start: 27340, Stop: 27624, Start Num: 48

Candidate Starts for WaddleDee\_62:

(20, 27196), (40, 27322), (46, 27334), (Start: 48 @27340 has 17 MA's), (94, 27619),

Gene: Wizard\_11 Start: 5251, Stop: 5565, Start Num: 49

Candidate Starts for Wizard\_11:

(Start: 31 @5188 has 1 MA's), (Start: 49 @5251 has 43 MA's), (73, 5407), (74, 5413),

Gene: Xkcd426\_10 Start: 8759, Stop: 9115, Start Num: 43

Candidate Starts for Xkcd426\_10:

(13, 8549), (14, 8552), (34, 8729), (Start: 43 @8759 has 11 MA's), (56, 8819), (57, 8822), (66, 8873), (72, 8918), (76, 8954),

Gene: YDN12\_10 Start: 7676, Stop: 8026, Start Num: 43

Candidate Starts for YDN12\_10:

(Start: 43 @7676 has 11 MA's), (56, 7736), (64, 7781), (67, 7793), (70, 7823), (76, 7871), (81, 7886), (92, 7955),

Gene: YorkOnyx\_11 Start: 5911, Stop: 6219, Start Num: 45

Candidate Starts for YorkOnyx\_11:

(5, 5659), (Start: 45 @5911 has 53 MA's), (Start: 49 @5920 has 43 MA's), (66, 6019), (73, 6076), (74, 6082), (85, 6148),

Gene: YungMoney\_11 Start: 6205, Stop: 6510, Start Num: 49

Candidate Starts for YungMoney\_11:

(1, 5854), (Start: 31 @6142 has 1 MA's), (Start: 49 @6205 has 43 MA's), (73, 6361), (74, 6367),

Gene: Zipp\_13 Start: 7043, Stop: 7360, Start Num: 45

Candidate Starts for Zipp\_13:

(Start: 45 @7043 has 53 MA's), (52, 7073), (66, 7154), (74, 7217), (78, 7235), (79, 7238), (80, 7241),  
(85, 7283),

Gene: Zitch\_14 Start: 6362, Stop: 6679, Start Num: 45

Candidate Starts for Zitch\_14:

(Start: 45 @6362 has 53 MA's), (54, 6404), (66, 6473), (74, 6536), (80, 6560), (85, 6602),

Gene: Zooman\_66 Start: 27525, Stop: 27800, Start Num: 50

Candidate Starts for Zooman\_66:

(46, 27510), (Start: 50 @27525 has 2 MA's), (53, 27546), (73, 27675), (83, 27732), (84, 27735),