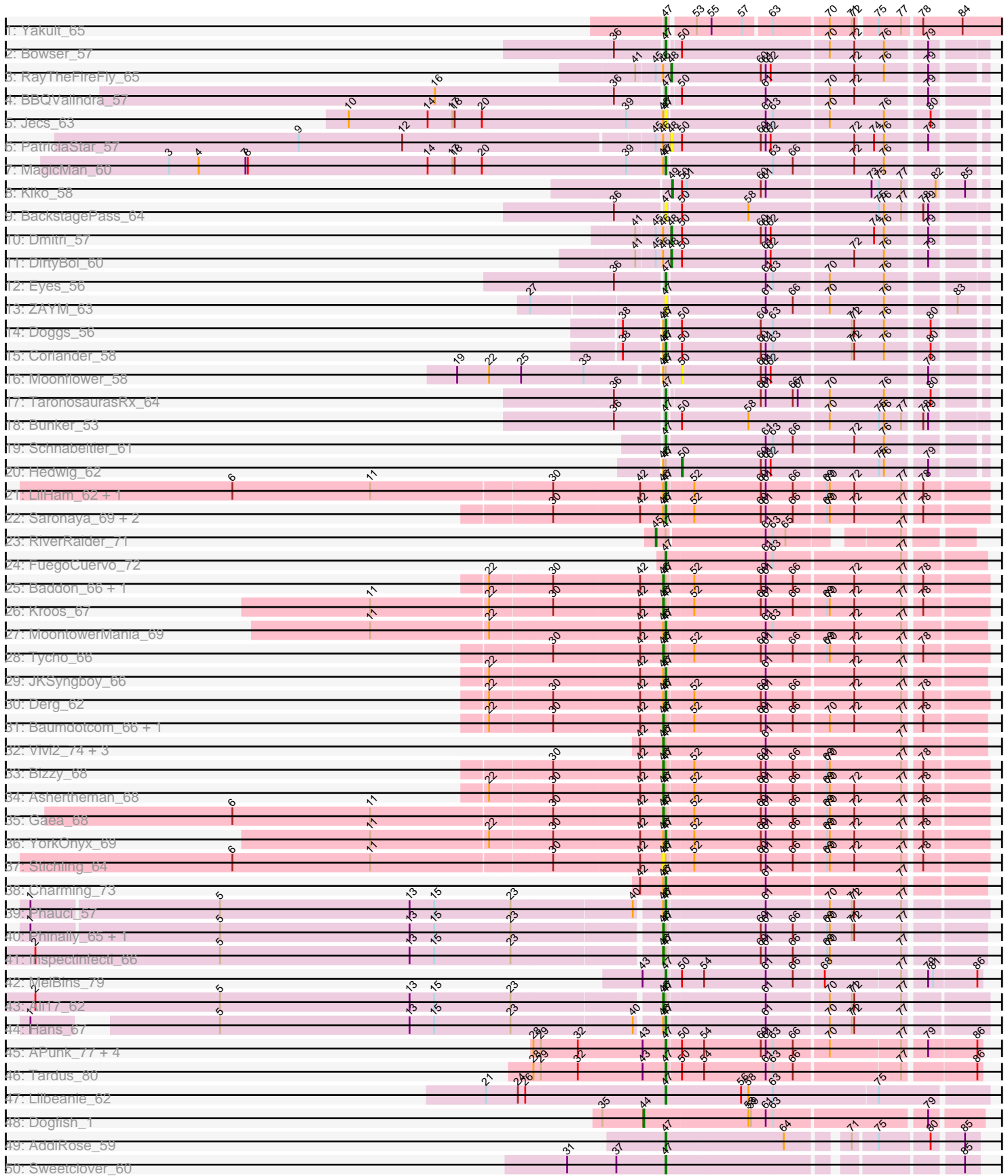


Pham 311590



51: Daddyjeff\_60

52: Serenabean\_59

34

40

47

85

89

A series of horizontal lines for writing, with a dashed line on the right side.

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 311590 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311590 has 65 members, 6 are drafts.

Phages represented in each track:

- Track 1 : Yakult\_65
- Track 2 : Bowser\_57
- Track 3 : RayTheFireFly\_65
- Track 4 : BBQValindra\_57
- Track 5 : Jecs\_63
- Track 6 : PatriciaStar\_57
- Track 7 : MagicMan\_60
- Track 8 : Kiko\_58
- Track 9 : BackstagePass\_64
- Track 10 : Dmitri\_57
- Track 11 : DirtyBoi\_60
- Track 12 : Eyes\_56
- Track 13 : ZAYM\_63
- Track 14 : Doggs\_56
- Track 15 : Coriander\_58
- Track 16 : Moonflower\_58
- Track 17 : TaronosaurusRx\_64
- Track 18 : Bunker\_53
- Track 19 : Schnabeltier\_61
- Track 20 : Hedwig\_62
- Track 21 : LilHam\_62, SchottB\_65
- Track 22 : Saronaya\_69, Gustavo\_69, StorminNorm\_68
- Track 23 : RiverRaider\_71
- Track 24 : FuegoCuervo\_72
- Track 25 : Baddon\_66, Ribeye\_68
- Track 26 : Kroos\_67
- Track 27 : MoontowerMania\_69
- Track 28 : Tycho\_66
- Track 29 : JKSyngboy\_66
- Track 30 : Derg\_62
- Track 31 : Baumdotcom\_66, Tangerine\_68
- Track 32 : Vivi2\_74, Fosterous\_72, Rofo\_70, Tangent\_72
- Track 33 : Bizzy\_68
- Track 34 : Ashertheman\_68
- Track 35 : Gaea\_68
- Track 36 : YorkOnyx\_69
- Track 37 : Stichling\_64

- Track 38 : Charming\_73
- Track 39 : Phauci\_57
- Track 40 : Phinally\_65, Leonard\_65
- Track 41 : Inspectinfecti\_66
- Track 42 : MelBins\_79
- Track 43 : Ali17\_62
- Track 44 : Hans\_67
- Track 45 : APunk\_77, Abblin\_77, Sampson\_79, Scioto\_78, Natkenzie\_77
- Track 46 : Tardus\_80
- Track 47 : Lilbeanie\_62
- Track 48 : Dogfish\_1
- Track 49 : AddiRose\_59
- Track 50 : Sweetclover\_60
- Track 51 : Daddyjeff\_60
- Track 52 : Serenabean\_59

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

The start number called the most often in the published annotations is 47, it was called in 34 of the 59 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- APunk\_77, Abblin\_77, AddiRose\_59, BBQValindra\_57, BackstagePass\_64, Bowser\_57, Bunker\_53, Charming\_73, Coriander\_58, Daddyjeff\_60, Derg\_62, Doggs\_56, Eyes\_56, FuegoCuervo\_72, Gustavo\_69, Hans\_67, JKSyngboy\_66, Jecs\_63, LilHam\_62, Lilbeanie\_62, MagicMan\_60, MelBins\_79, MoontowerMania\_69, Natkenzie\_77, Phauci\_57, Sampson\_79, Saronaya\_69, Schnabeltier\_61, SchottB\_65, Scioto\_78, StorminNorm\_68, Sweetclover\_60, Tardus\_80, TaronosaurusRx\_64, Yakult\_65, YorkOnyx\_69, ZAYM\_63,

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

- Ali17\_62, Ashertheman\_68, Baddon\_66, Baumdotcom\_66, Bizzy\_68, Fosterous\_72, Gaea\_68, Hedwig\_62, Inspectinfecti\_66, Kroos\_67, Leonard\_65, Moonflower\_58, Phinally\_65, Ribeye\_68, RiverRaider\_71, Rofo\_70, Serenabean\_59, Stichling\_64, Tangent\_72, Tangerine\_68, Tycho\_66, Vivi2\_74,

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

- DirtyBoi\_60, Dmitri\_57, Dogfish\_1, Kiko\_58, PatriciaStar\_57, RayTheFireFly\_65,

**Summary by start number:**

Start 40:

- Found in 3 of 65 ( 4.6% ) of genes in pham
- Manual Annotations of this start: 1 of 59
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Serenabean\_59 (JA),

Start 44:

- Found in 1 of 65 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 59

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dogfish\_1 (DT),

#### Start 45:

- Found in 5 of 65 ( 7.7% ) of genes in pham
- Manual Annotations of this start: 1 of 59
- Called 20.0% of time when present
- Phage (with cluster) where this start called: RiverRaider\_71 (DE1),

#### Start 46:

- Found in 40 of 65 ( 61.5% ) of genes in pham
- Manual Annotations of this start: 17 of 59
- Called 45.0% of time when present
- Phage (with cluster) where this start called: Ali17\_62 (DE2), Ashertheman\_68 (DE1), Baddon\_66 (DE1), Baumdotcom\_66 (DE1), Bizzy\_68 (DE1), Fosterous\_72 (DE1), Gaea\_68 (DE1), Inspectinfecti\_66 (DE2), Kroos\_67 (DE1), Leonard\_65 (DE2), Phinally\_65 (DE2), Ribeye\_68 (DE1), Rofo\_70 (DE1), Stichling\_64 (DE1), Tangent\_72 (DE1), Tangerine\_68 (DE1), Tycho\_66 (DE1), Vivi2\_74 (DE1),

#### Start 47:

- Found in 59 of 65 ( 90.8% ) of genes in pham
- Manual Annotations of this start: 34 of 59
- Called 62.7% of time when present
- Phage (with cluster) where this start called: APunk\_77 (DE4), Abblin\_77 (DE4), AddiRose\_59 (JA), BBQValindra\_57 (DB), BackstagePass\_64 (DB), Bowser\_57 (DB), Bunker\_53 (DB), Charming\_73 (DE1), Coriander\_58 (DB), Daddyjeff\_60 (JA), Derg\_62 (DE1), Doggs\_56 (DB), Eyes\_56 (DB), FuegoCuervo\_72 (DE1), Gustavo\_69 (DE1), Hans\_67 (DE2), JKSyngboy\_66 (DE1), Jecs\_63 (DB), LilHam\_62 (DE1), Lilbeanie\_62 (DE5), MagicMan\_60 (DB), MelBins\_79 (DE2), MoontowerMania\_69 (DE1), Natkenzie\_77 (DE4), Phauci\_57 (DE2), Sampson\_79 (DE4), Saronaya\_69 (DE1), Schnabeltier\_61 (DB), SchottB\_65 (DE1), Scioto\_78 (DE4), StorminNorm\_68 (DE1), Sweetclover\_60 (JA), Tardus\_80 (DE4), TaronosaurusRx\_64 (DB), Yakult\_65 (CT), YorkOnyx\_69 (DE1), ZAYM\_63 (DB),

#### Start 48:

- Found in 4 of 65 ( 6.2% ) of genes in pham
- Manual Annotations of this start: 3 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DirtyBoi\_60 (DB), Dmitri\_57 (DB), PatriciaStar\_57 (DB), RayTheFireFly\_65 (DB),

#### Start 49:

- Found in 1 of 65 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kiko\_58 (DB),

#### Start 50:

- Found in 19 of 65 ( 29.2% ) of genes in pham
- Manual Annotations of this start: 1 of 59
- Called 10.5% of time when present
- Phage (with cluster) where this start called: Hedwig\_62 (DB), Moonflower\_58 (DB),

## Summary by clusters:

There are 8 clusters represented in this pham: DE4, DE2, DB, DE5, DE1, DT, JA, CT,

Info for manual annotations of cluster CT:

- Start number 47 was manually annotated 1 time for cluster CT.

Info for manual annotations of cluster DB:

- Start number 47 was manually annotated 9 times for cluster DB.
- Start number 48 was manually annotated 3 times for cluster DB.
- Start number 49 was manually annotated 1 time for cluster DB.
- Start number 50 was manually annotated 1 time for cluster DB.

Info for manual annotations of cluster DE1:

- Start number 45 was manually annotated 1 time for cluster DE1.
- Start number 46 was manually annotated 13 times for cluster DE1.
- Start number 47 was manually annotated 11 times for cluster DE1.

Info for manual annotations of cluster DE2:

- Start number 46 was manually annotated 4 times for cluster DE2.
- Start number 47 was manually annotated 3 times for cluster DE2.

Info for manual annotations of cluster DE4:

- Start number 47 was manually annotated 6 times for cluster DE4.

Info for manual annotations of cluster DE5:

- Start number 47 was manually annotated 1 time for cluster DE5.

Info for manual annotations of cluster DT:

- Start number 44 was manually annotated 1 time for cluster DT.

Info for manual annotations of cluster JA:

- Start number 40 was manually annotated 1 time for cluster JA.
- Start number 47 was manually annotated 3 times for cluster JA.

## Gene Information:

Gene: APunk\_77 Start: 54372, Stop: 54731, Start Num: 47

Candidate Starts for APunk\_77:

(28, 54213), (29, 54222), (32, 54267), (43, 54345), (Start: 47 @54372 has 34 MA's), (Start: 50 @54387 has 1 MA's), (54, 54414), (60, 54483), (61, 54489), (63, 54498), (66, 54522), (70, 54561), (77, 54645), (79, 54669), (86, 54726),

Gene: Abblin\_77 Start: 54530, Stop: 54889, Start Num: 47

Candidate Starts for Abblin\_77:

(28, 54371), (29, 54380), (32, 54425), (43, 54503), (Start: 47 @54530 has 34 MA's), (Start: 50 @54545 has 1 MA's), (54, 54572), (60, 54641), (61, 54647), (63, 54656), (66, 54680), (70, 54719), (77, 54803), (79, 54827), (86, 54884),

Gene: AddiRose\_59 Start: 40641, Stop: 40973, Start Num: 47

Candidate Starts for AddiRose\_59:

(Start: 47 @40641 has 34 MA's), (64, 40779), (71, 40839), (75, 40866), (80, 40923), (85, 40956),

Gene: Ali17\_62 Start: 49345, Stop: 49716, Start Num: 46

Candidate Starts for Ali17\_62:

(2, 48598), (5, 48823), (13, 49054), (15, 49084), (23, 49177), (Start: 46 @49345 has 17 MA's), (Start: 47 @49348 has 34 MA's), (61, 49465), (70, 49537), (71, 49564), (72, 49567), (77, 49624),

Gene: Ashertheman\_68 Start: 50736, Stop: 51107, Start Num: 46

Candidate Starts for Ashertheman\_68:

(22, 50535), (30, 50607), (42, 50709), (Start: 46 @50736 has 17 MA's), (Start: 47 @50739 has 34 MA's), (52, 50769), (60, 50850), (61, 50856), (66, 50889), (69, 50925), (70, 50928), (72, 50958), (77, 51015), (78, 51033),

Gene: BBQValindra\_57 Start: 40661, Stop: 41023, Start Num: 47

Candidate Starts for BBQValindra\_57:

(16, 40394), (36, 40610), (Start: 47 @40661 has 34 MA's), (Start: 50 @40673 has 1 MA's), (61, 40775), (70, 40847), (72, 40877), (79, 40958),

Gene: BackstagePass\_64 Start: 40075, Stop: 40437, Start Num: 47

Candidate Starts for BackstagePass\_64:

(36, 40024), (Start: 47 @40075 has 34 MA's), (Start: 50 @40090 has 1 MA's), (58, 40171), (75, 40324), (76, 40330), (77, 40351), (78, 40369), (79, 40375),

Gene: Baddon\_66 Start: 51417, Stop: 51788, Start Num: 46

Candidate Starts for Baddon\_66:

(22, 51216), (30, 51288), (42, 51390), (Start: 46 @51417 has 17 MA's), (Start: 47 @51420 has 34 MA's), (52, 51450), (60, 51531), (61, 51537), (66, 51570), (72, 51639), (77, 51696), (78, 51714),

Gene: Baumdotcom\_66 Start: 50694, Stop: 51062, Start Num: 46

Candidate Starts for Baumdotcom\_66:

(22, 50493), (30, 50565), (42, 50667), (Start: 46 @50694 has 17 MA's), (Start: 47 @50697 has 34 MA's), (52, 50727), (60, 50808), (61, 50814), (66, 50847), (70, 50886), (72, 50916), (77, 50973), (78, 50991),

Gene: Bizzy\_68 Start: 50614, Stop: 50985, Start Num: 46

Candidate Starts for Bizzy\_68:

(30, 50485), (42, 50587), (Start: 46 @50614 has 17 MA's), (Start: 47 @50617 has 34 MA's), (52, 50647), (60, 50728), (61, 50734), (66, 50767), (69, 50803), (70, 50806), (77, 50893), (78, 50911),

Gene: Bowser\_57 Start: 40387, Stop: 40746, Start Num: 47

Candidate Starts for Bowser\_57:

(36, 40336), (Start: 47 @40387 has 34 MA's), (Start: 50 @40399 has 1 MA's), (70, 40573), (72, 40603), (76, 40639), (79, 40684),

Gene: Bunker\_53 Start: 38968, Stop: 39330, Start Num: 47

Candidate Starts for Bunker\_53:

(36, 38917), (Start: 47 @38968 has 34 MA's), (Start: 50 @38983 has 1 MA's), (58, 39064), (70, 39157), (75, 39217), (76, 39223), (77, 39244), (78, 39262), (79, 39268),

Gene: Charming\_73 Start: 51629, Stop: 51997, Start Num: 47

Candidate Starts for Charming\_73:

(42, 51599), (Start: 46 @51626 has 17 MA's), (Start: 47 @51629 has 34 MA's), (61, 51749), (77, 51908),

Gene: Coriander\_58 Start: 40264, Stop: 40620, Start Num: 47

Candidate Starts for Coriander\_58:

(38, 40219), (Start: 46 @40261 has 17 MA's), (Start: 47 @40264 has 34 MA's), (Start: 50 @40279 has 1 MA's), (60, 40375), (61, 40381), (63, 40390), (71, 40480), (72, 40483), (76, 40519), (80, 40567),

Gene: Daddyjeff\_60 Start: 40862, Stop: 41194, Start Num: 47

Candidate Starts for Daddyjeff\_60:

(34, 40775), (Start: 47 @40862 has 34 MA's), (85, 41177),

Gene: Derg\_62 Start: 49413, Stop: 49781, Start Num: 47

Candidate Starts for Derg\_62:

(22, 49209), (30, 49281), (42, 49383), (Start: 46 @49410 has 17 MA's), (Start: 47 @49413 has 34 MA's), (52, 49443), (60, 49524), (61, 49530), (66, 49563), (72, 49632), (77, 49689), (78, 49707),

Gene: DirtyBoi\_60 Start: 39016, Stop: 39369, Start Num: 48

Candidate Starts for DirtyBoi\_60:

(41, 38980), (Start: 45 @39001 has 1 MA's), (Start: 46 @39007 has 17 MA's), (Start: 48 @39016 has 3 MA's), (Start: 50 @39028 has 1 MA's), (61, 39130), (62, 39136), (72, 39232), (76, 39268), (79, 39313),

Gene: Dmitri\_57 Start: 41500, Stop: 41853, Start Num: 48

Candidate Starts for Dmitri\_57:

(41, 41464), (Start: 45 @41485 has 1 MA's), (Start: 46 @41491 has 17 MA's), (Start: 48 @41500 has 3 MA's), (Start: 50 @41512 has 1 MA's), (60, 41608), (61, 41614), (62, 41620), (74, 41740), (76, 41752), (79, 41797),

Gene: Dogfish\_1 Start: 58, Stop: 447, Start Num: 44

Candidate Starts for Dogfish\_1:

(35, 10), (Start: 44 @58 has 1 MA's), (58, 184), (59, 187), (61, 205), (63, 214), (79, 388),

Gene: Doggs\_56 Start: 40597, Stop: 40953, Start Num: 47

Candidate Starts for Doggs\_56:

(38, 40552), (Start: 46 @40594 has 17 MA's), (Start: 47 @40597 has 34 MA's), (Start: 50 @40612 has 1 MA's), (60, 40708), (63, 40723), (71, 40813), (72, 40816), (76, 40852), (80, 40900),

Gene: Eyes\_56 Start: 40436, Stop: 40798, Start Num: 47

Candidate Starts for Eyes\_56:

(36, 40385), (Start: 47 @40436 has 34 MA's), (61, 40553), (63, 40562), (70, 40625), (76, 40691),

Gene: Fosterous\_72 Start: 52620, Stop: 52991, Start Num: 46

Candidate Starts for Fosterous\_72:

(42, 52593), (Start: 46 @52620 has 17 MA's), (Start: 47 @52623 has 34 MA's), (61, 52743), (77, 52902),

Gene: FuegoCuervo\_72 Start: 52007, Stop: 52375, Start Num: 47

Candidate Starts for FuegoCuervo\_72:

(Start: 47 @52007 has 34 MA's), (61, 52127), (63, 52136), (77, 52286),

Gene: Gaea\_68 Start: 50520, Stop: 50891, Start Num: 46

Candidate Starts for Gaea\_68:

(6, 50010), (11, 50178), (30, 50391), (42, 50493), (Start: 46 @50520 has 17 MA's), (Start: 47 @50523 has 34 MA's), (52, 50553), (60, 50634), (61, 50640), (66, 50673), (69, 50709), (70, 50712), (72, 50742), (77, 50799), (78, 50817),

Gene: Gustavo\_69 Start: 51496, Stop: 51864, Start Num: 47

Candidate Starts for Gustavo\_69:

(30, 51364), (42, 51466), (Start: 46 @51493 has 17 MA's), (Start: 47 @51496 has 34 MA's), (52, 51526), (60, 51607), (61, 51613), (66, 51646), (69, 51682), (70, 51685), (72, 51715), (77, 51772), (78, 51790),

Gene: Hans\_67 Start: 50034, Stop: 50402, Start Num: 47

Candidate Starts for Hans\_67:

(1, 49326), (5, 49509), (13, 49740), (15, 49770), (23, 49863), (Start: 40 @50004 has 1 MA's), (Start: 46 @50031 has 17 MA's), (Start: 47 @50034 has 34 MA's), (61, 50151), (70, 50223), (71, 50250), (72, 50253), (77, 50310),

Gene: Hedwig\_62 Start: 39946, Stop: 40287, Start Num: 50

Candidate Starts for Hedwig\_62:

(Start: 46 @39925 has 17 MA's), (Start: 47 @39928 has 34 MA's), (Start: 50 @39946 has 1 MA's), (60, 40042), (61, 40048), (62, 40054), (75, 40180), (76, 40186), (79, 40231),

Gene: Inspectinfecti\_66 Start: 50194, Stop: 50562, Start Num: 46

Candidate Starts for Inspectinfecti\_66:

(2, 49447), (5, 49672), (13, 49903), (15, 49933), (23, 50026), (Start: 46 @50194 has 17 MA's), (Start: 47 @50197 has 34 MA's), (60, 50308), (61, 50314), (66, 50347), (69, 50383), (70, 50386), (77, 50473),

Gene: JKSyngboy\_66 Start: 51371, Stop: 51739, Start Num: 47

Candidate Starts for JKSyngboy\_66:

(22, 51167), (42, 51341), (Start: 46 @51368 has 17 MA's), (Start: 47 @51371 has 34 MA's), (61, 51491), (72, 51593), (77, 51650),

Gene: Jecs\_63 Start: 41546, Stop: 41902, Start Num: 47

Candidate Starts for Jecs\_63:

(10, 41168), (14, 41264), (17, 41294), (18, 41297), (20, 41330), (39, 41501), (Start: 46 @41543 has 17 MA's), (Start: 47 @41546 has 34 MA's), (61, 41663), (63, 41672), (70, 41735), (76, 41801), (80, 41849),

Gene: Kiko\_58 Start: 39604, Stop: 39957, Start Num: 49

Candidate Starts for Kiko\_58:

(Start: 49 @39604 has 1 MA's), (Start: 50 @39616 has 1 MA's), (51, 39622), (60, 39712), (61, 39718), (73, 39841), (75, 39850), (77, 39877), (82, 39910), (85, 39937),

Gene: Kroos\_67 Start: 51166, Stop: 51537, Start Num: 46

Candidate Starts for Kroos\_67:

(11, 50824), (22, 50965), (30, 51037), (42, 51139), (Start: 46 @51166 has 17 MA's), (Start: 47 @51169 has 34 MA's), (52, 51199), (60, 51280), (61, 51286), (66, 51319), (69, 51355), (70, 51358), (72, 51388), (77, 51445), (78, 51463),

Gene: Leonard\_65 Start: 50257, Stop: 50625, Start Num: 46

Candidate Starts for Leonard\_65:

(1, 49513), (5, 49735), (13, 49966), (15, 49996), (23, 50089), (Start: 46 @50257 has 17 MA's), (Start: 47 @50260 has 34 MA's), (60, 50371), (61, 50377), (66, 50410), (69, 50446), (70, 50449), (71, 50476), (72, 50479), (77, 50536),

Gene: LilHam\_62 Start: 48392, Stop: 48760, Start Num: 47

Candidate Starts for LilHam\_62:

(6, 47879), (11, 48047), (30, 48260), (42, 48362), (Start: 46 @48389 has 17 MA's), (Start: 47 @48392 has 34 MA's), (52, 48422), (60, 48503), (61, 48509), (66, 48542), (69, 48578), (70, 48581), (72, 48611), (77, 48668), (78, 48686),

Gene: Lilbeanie\_62 Start: 43807, Stop: 44187, Start Num: 47

Candidate Starts for Lilbeanie\_62:

(21, 43588), (24, 43627), (26, 43636), (Start: 47 @43807 has 34 MA's), (56, 43897), (58, 43906), (63, 43936), (75, 44062),

Gene: MagicMan\_60 Start: 41600, Stop: 41956, Start Num: 47

Candidate Starts for MagicMan\_60:

(3, 41003), (4, 41039), (7, 41096), (8, 41099), (14, 41318), (17, 41348), (18, 41351), (20, 41384), (39, 41555), (Start: 46 @41597 has 17 MA's), (Start: 47 @41600 has 34 MA's), (63, 41726), (66, 41750), (72, 41819), (76, 41855),

Gene: MelBins\_79 Start: 55065, Stop: 55424, Start Num: 47

Candidate Starts for MelBins\_79:

(43, 55038), (Start: 47 @55065 has 34 MA's), (Start: 50 @55080 has 1 MA's), (54, 55107), (61, 55182), (66, 55215), (68, 55248), (77, 55338), (79, 55362), (81, 55368), (86, 55419),

Gene: Moonflower\_58 Start: 41053, Stop: 41394, Start Num: 50

Candidate Starts for Moonflower\_58:

(19, 40798), (22, 40837), (25, 40876), (33, 40951), (Start: 46 @41032 has 17 MA's), (Start: 47 @41035 has 34 MA's), (Start: 50 @41053 has 1 MA's), (60, 41149), (61, 41155), (62, 41161), (79, 41338),

Gene: MoontowerMania\_69 Start: 53181, Stop: 53549, Start Num: 47

Candidate Starts for MoontowerMania\_69:

(11, 52836), (22, 52977), (42, 53151), (Start: 46 @53178 has 17 MA's), (Start: 47 @53181 has 34 MA's), (61, 53301), (63, 53310), (72, 53403), (77, 53460),

Gene: Natkenzie\_77 Start: 54530, Stop: 54889, Start Num: 47

Candidate Starts for Natkenzie\_77:

(28, 54371), (29, 54380), (32, 54425), (43, 54503), (Start: 47 @54530 has 34 MA's), (Start: 50 @54545 has 1 MA's), (54, 54572), (60, 54641), (61, 54647), (63, 54656), (66, 54680), (70, 54719), (77, 54803), (79, 54827), (86, 54884),

Gene: PatriciaStar\_57 Start: 41137, Stop: 41490, Start Num: 48

Candidate Starts for PatriciaStar\_57:

(9, 40702), (12, 40828), (Start: 45 @41122 has 1 MA's), (Start: 46 @41128 has 17 MA's), (Start: 48 @41137 has 3 MA's), (Start: 50 @41149 has 1 MA's), (60, 41245), (61, 41251), (62, 41257), (72, 41353), (74, 41377), (76, 41389), (79, 41434),

Gene: Phauci\_57 Start: 47112, Stop: 47480, Start Num: 47

Candidate Starts for Phauci\_57:

(1, 46365), (5, 46587), (13, 46818), (15, 46848), (23, 46941), (Start: 40 @47082 has 1 MA's), (Start: 46 @47109 has 17 MA's), (Start: 47 @47112 has 34 MA's), (61, 47229), (70, 47301), (71, 47328), (72, 47331), (77, 47388),

Gene: Phinally\_65 Start: 50254, Stop: 50622, Start Num: 46

Candidate Starts for Phinally\_65:

(1, 49510), (5, 49732), (13, 49963), (15, 49993), (23, 50086), (Start: 46 @50254 has 17 MA's), (Start: 47 @50257 has 34 MA's), (60, 50368), (61, 50374), (66, 50407), (69, 50443), (70, 50446), (71, 50473), (72, 50476), (77, 50533),

Gene: RayTheFireFly\_65 Start: 41391, Stop: 41744, Start Num: 48

Candidate Starts for RayTheFireFly\_65:

(41, 41355), (Start: 45 @41376 has 1 MA's), (Start: 46 @41382 has 17 MA's), (Start: 48 @41391 has 3 MA's), (60, 41499), (61, 41505), (62, 41511), (72, 41607), (76, 41643), (79, 41688),

Gene: Ribeye\_68 Start: 50649, Stop: 51020, Start Num: 46

Candidate Starts for Ribeye\_68:

(22, 50448), (30, 50520), (42, 50622), (Start: 46 @50649 has 17 MA's), (Start: 47 @50652 has 34 MA's), (52, 50682), (60, 50763), (61, 50769), (66, 50802), (72, 50871), (77, 50928), (78, 50946),

Gene: RiverRaider\_71 Start: 50465, Stop: 50803, Start Num: 45

Candidate Starts for RiverRaider\_71:

(Start: 45 @50465 has 1 MA's), (Start: 47 @50477 has 34 MA's), (61, 50594), (63, 50603), (65, 50618), (77, 50732),

Gene: Rofo\_70 Start: 52202, Stop: 52573, Start Num: 46

Candidate Starts for Rofo\_70:

(42, 52175), (Start: 46 @52202 has 17 MA's), (Start: 47 @52205 has 34 MA's), (61, 52325), (77, 52484),

Gene: Sampson\_79 Start: 54681, Stop: 55040, Start Num: 47

Candidate Starts for Sampson\_79:

(28, 54522), (29, 54531), (32, 54576), (43, 54654), (Start: 47 @54681 has 34 MA's), (Start: 50 @54696 has 1 MA's), (54, 54723), (60, 54792), (61, 54798), (63, 54807), (66, 54831), (70, 54870), (77, 54954), (79, 54978), (86, 55035),

Gene: Saronaya\_69 Start: 51496, Stop: 51864, Start Num: 47

Candidate Starts for Saronaya\_69:

(30, 51364), (42, 51466), (Start: 46 @51493 has 17 MA's), (Start: 47 @51496 has 34 MA's), (52, 51526), (60, 51607), (61, 51613), (66, 51646), (69, 51682), (70, 51685), (72, 51715), (77, 51772), (78, 51790),

Gene: Schnabeltier\_61 Start: 41019, Stop: 41375, Start Num: 47

Candidate Starts for Schnabeltier\_61:

(Start: 47 @41019 has 34 MA's), (61, 41136), (63, 41145), (66, 41169), (72, 41238), (76, 41274),

Gene: SchottB\_65 Start: 51109, Stop: 51477, Start Num: 47

Candidate Starts for SchottB\_65:

(6, 50596), (11, 50764), (30, 50977), (42, 51079), (Start: 46 @51106 has 17 MA's), (Start: 47 @51109 has 34 MA's), (52, 51139), (60, 51220), (61, 51226), (66, 51259), (69, 51295), (70, 51298), (72, 51328), (77, 51385), (78, 51403),

Gene: Scioto\_78 Start: 54531, Stop: 54890, Start Num: 47

Candidate Starts for Scioto\_78:

(28, 54372), (29, 54381), (32, 54426), (43, 54504), (Start: 47 @54531 has 34 MA's), (Start: 50 @54546 has 1 MA's), (54, 54573), (60, 54642), (61, 54648), (63, 54657), (66, 54681), (70, 54720), (77, 54804), (79, 54828), (86, 54885),

Gene: Serenabean\_59 Start: 40775, Stop: 41143, Start Num: 40

Candidate Starts for Serenabean\_59:

(Start: 40 @40775 has 1 MA's), (Start: 47 @40811 has 34 MA's), (85, 41126),

Gene: Stichling\_64 Start: 50165, Stop: 50536, Start Num: 46

Candidate Starts for Stichling\_64:

(6, 49655), (11, 49823), (30, 50036), (42, 50138), (Start: 46 @50165 has 17 MA's), (Start: 47 @50168 has 34 MA's), (52, 50198), (60, 50279), (61, 50285), (66, 50318), (69, 50354), (70, 50357), (72, 50387), (77, 50444), (78, 50462),

Gene: StorminNorm\_68 Start: 51280, Stop: 51648, Start Num: 47

Candidate Starts for StorminNorm\_68:

(30, 51148), (42, 51250), (Start: 46 @51277 has 17 MA's), (Start: 47 @51280 has 34 MA's), (52, 51310), (60, 51391), (61, 51397), (66, 51430), (69, 51466), (70, 51469), (72, 51499), (77, 51556), (78, 51574),

Gene: Sweetclover\_60 Start: 39794, Stop: 40126, Start Num: 47

Candidate Starts for Sweetclover\_60:

(31, 39677), (37, 39737), (Start: 47 @39794 has 34 MA's), (85, 40109),

Gene: Tangent\_72 Start: 51907, Stop: 52278, Start Num: 46

Candidate Starts for Tangent\_72:

(42, 51880), (Start: 46 @51907 has 17 MA's), (Start: 47 @51910 has 34 MA's), (61, 52030), (77, 52189),

Gene: Tangerine\_68 Start: 50786, Stop: 51157, Start Num: 46

Candidate Starts for Tangerine\_68:

(22, 50585), (30, 50657), (42, 50759), (Start: 46 @50786 has 17 MA's), (Start: 47 @50789 has 34 MA's), (52, 50819), (60, 50900), (61, 50906), (66, 50939), (70, 50978), (72, 51008), (77, 51065), (78, 51083),

Gene: Tardus\_80 Start: 55265, Stop: 55624, Start Num: 47

Candidate Starts for Tardus\_80:

(28, 55106), (29, 55115), (32, 55160), (43, 55238), (Start: 47 @55265 has 34 MA's), (Start: 50 @55280 has 1 MA's), (54, 55307), (61, 55382), (63, 55391), (66, 55415), (77, 55538), (86, 55619),

Gene: TaronosaurusRx\_64 Start: 41019, Stop: 41372, Start Num: 47

Candidate Starts for TaronosaurusRx\_64:

(36, 40968), (Start: 47 @41019 has 34 MA's), (60, 41127), (61, 41133), (66, 41166), (67, 41172), (70, 41205), (76, 41271), (80, 41319),

Gene: Tycho\_66 Start: 50602, Stop: 50973, Start Num: 46

Candidate Starts for Tycho\_66:

(30, 50473), (42, 50575), (Start: 46 @50602 has 17 MA's), (Start: 47 @50605 has 34 MA's), (52, 50635), (60, 50716), (61, 50722), (66, 50755), (69, 50791), (70, 50794), (72, 50824), (77, 50881), (78, 50899),

Gene: Vivi2\_74 Start: 52962, Stop: 53333, Start Num: 46

Candidate Starts for Vivi2\_74:

(42, 52935), (Start: 46 @52962 has 17 MA's), (Start: 47 @52965 has 34 MA's), (61, 53085), (77, 53244),

Gene: Yakult\_65 Start: 44489, Stop: 44863, Start Num: 47

Candidate Starts for Yakult\_65:

(Start: 47 @44489 has 34 MA's), (53, 44519), (55, 44537), (57, 44573), (63, 44603), (70, 44666), (71, 44693), (72, 44696), (75, 44717), (77, 44744), (78, 44765), (84, 44813),

Gene: YorkOnyx\_69 Start: 50785, Stop: 51153, Start Num: 47

Candidate Starts for YorkOnyx\_69:

(11, 50440), (22, 50581), (30, 50653), (42, 50755), (Start: 46 @50782 has 17 MA's), (Start: 47 @50785 has 34 MA's), (52, 50815), (60, 50896), (61, 50902), (66, 50935), (69, 50971), (70, 50974), (72, 51004), (77, 51061), (78, 51079),

Gene: ZAYM\_63 Start: 41061, Stop: 41417, Start Num: 47

Candidate Starts for ZAYM\_63:

(27, 40911), (Start: 47 @41061 has 34 MA's), (61, 41178), (66, 41211), (70, 41250), (76, 41316), (83, 41388),