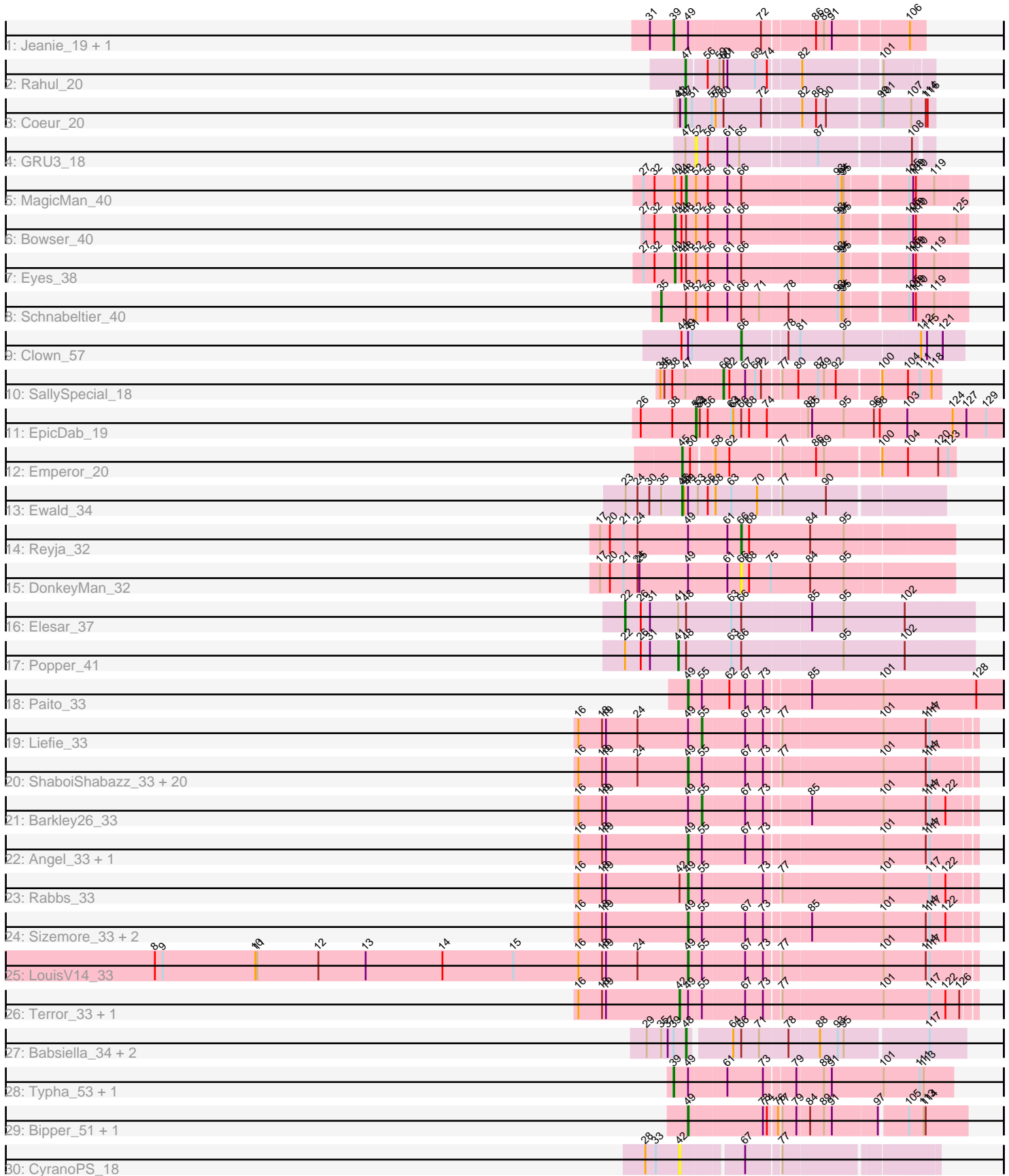


# Zoomed Pham 163625



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 163625 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163625 has 59 members, 3 are drafts.

Phages represented in each track:

- Track 1 : Jeanie\_19, McGonagall\_19
- Track 2 : Rahul\_20
- Track 3 : Coeur\_20
- Track 4 : GRU3\_18
- Track 5 : MagicMan\_40
- Track 6 : Bowser\_40
- Track 7 : Eyes\_38
- Track 8 : Schnabeltier\_40
- Track 9 : Clown\_57
- Track 10 : SallySpecial\_18
- Track 11 : EpicDab\_19
- Track 12 : Emperor\_20
- Track 13 : Ewald\_34
- Track 14 : Reyja\_32
- Track 15 : DonkeyMan\_32
- Track 16 : Elesar\_37
- Track 17 : Popper\_41
- Track 18 : Paito\_33
- Track 19 : Liefie\_33
- Track 20 : ShaboiShabazz\_33, Periodt\_33, TomBrady\_33, Avrafan\_33, BruceB\_33, Mowgli\_33, BPs\_33, Marmie\_33, Chance64\_33, Jonghyun\_33, Sweets\_33, Hotshotbaby7\_33, Olga\_33, JorRay\_33, Halo\_33, Cherrybomb426\_33, Jane\_33, Annihilator\_33, Phreak\_33, Hope\_33, Aroostook\_33
- Track 21 : Barkley26\_33
- Track 22 : Angel\_33, Plagueis\_33
- Track 23 : Rabbs\_33
- Track 24 : Sizemore\_33, Kasen3\_33, Grizzly\_33
- Track 25 : LouisV14\_33
- Track 26 : Terror\_33, Taheera\_33
- Track 27 : Babsiella\_34, Brujita\_34, Island3\_34
- Track 28 : Typha\_53, Hilltopfarm\_53
- Track 29 : Bipper\_51, Cracklewink\_51
- Track 30 : CyranoPS\_18

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

The start number called the most often in the published annotations is 49, it was called in 31 of the 56 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Angel\_33, Annihilator\_33, Aroostook\_33, Avrafan\_33, BPs\_33, Bipper\_51, BruceB\_33, Chance64\_33, Cherrybomb426\_33, Cracklewink\_51, Grizzly\_33, Halo\_33, Hope\_33, Hotshotbaby7\_33, Jane\_33, Jonghyun\_33, JorRay\_33, Kasen3\_33, LouisV14\_33, Marmie\_33, Mowgli\_33, Olga\_33, Paito\_33, Periodt\_33, Phreak\_33, Plagueis\_33, Rabbs\_33, ShaboiShabazz\_33, Sizemore\_33, Sweets\_33, TomBrady\_33,

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

- Barkley26\_33, Clown\_57, DonkeyMan\_32, Ewald\_34, Hilltopfarm\_53, Jeanie\_19, Liefie\_33, McGonagall\_19, Reyja\_32, Taheera\_33, Terror\_33, Typha\_53,

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

- Babsiella\_34, Bowser\_40, Brujita\_34, Coeur\_20, CyranoPS\_18, Elesar\_37, Emperor\_20, EpicDab\_19, Eyes\_38, GRU3\_18, Island3\_34, MagicMan\_40, Popper\_41, Rahul\_20, SallySpecial\_18, Schnabeltier\_40,

### **Summary by start number:**

Start 22:

- Found in 2 of 59 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 1 of 56
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Elesar\_37 (FF),

Start 35:

- Found in 5 of 59 ( 8.5% ) of genes in pham
- Manual Annotations of this start: 1 of 56
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Schnabeltier\_40 (DB),

Start 39:

- Found in 7 of 59 ( 11.9% ) of genes in pham
- Manual Annotations of this start: 4 of 56
- Called 57.1% of time when present
- Phage (with cluster) where this start called: Hilltopfarm\_53 (Y), Jeanie\_19 (CW1), McGonagall\_19 (CW1), Typha\_53 (Y),

Start 40:

- Found in 3 of 59 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 2 of 56
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Bowser\_40 (DB), Eyes\_38 (DB),

Start 41:

- Found in 3 of 59 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 1 of 56
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Popper\_41 (FF),

Start 42:

- Found in 4 of 59 ( 6.8% ) of genes in pham
- Manual Annotations of this start: 2 of 56
- Called 75.0% of time when present
- Phage (with cluster) where this start called: CyranoPS\_18 (singleton), Taheera\_33 (G1), Terror\_33 (G1),

Start 45:

- Found in 2 of 59 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 2 of 56
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Emperor\_20 (DM), Ewald\_34 (DT),

Start 47:

- Found in 4 of 59 ( 6.8% ) of genes in pham
- Manual Annotations of this start: 2 of 56
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Coeur\_20 (CW2), Rahul\_20 (CW2),

Start 48:

- Found in 9 of 59 ( 15.3% ) of genes in pham
- Manual Annotations of this start: 4 of 56
- Called 44.4% of time when present
- Phage (with cluster) where this start called: Babsiella\_34 (I1), Brujita\_34 (I1), Island3\_34 (I1), MagicMan\_40 (DB),

Start 49:

- Found in 43 of 59 ( 72.9% ) of genes in pham
- Manual Annotations of this start: 31 of 56
- Called 72.1% of time when present
- Phage (with cluster) where this start called: Angel\_33 (G1), Annihilator\_33 (G1), Aroostook\_33 (G1), Avrafan\_33 (G1), BPs\_33 (G1), Bipper\_51 (Y), BruceB\_33 (G1), Chance64\_33 (G1), Cherrybomb426\_33 (G1), Cracklewink\_51 (Y), Grizzly\_33 (G1), Halo\_33 (G1), Hope\_33 (G1), Hotshotbaby7\_33 (G1), Jane\_33 (G1), Jonghyun\_33 (G1), JorRay\_33 (G1), Kasen3\_33 (G1), LouisV14\_33 (G1), Marmie\_33 (G1), Mowgli\_33 (G1), Olga\_33 (G1), Paito\_33 (G1), Periodt\_33 (G1), Phreak\_33 (G1), Plagueis\_33 (G1), Rabbs\_33 (G1), ShaboiShabazz\_33 (G1), Sizemore\_33 (G1), Sweets\_33 (G1), TomBrady\_33 (G1),

Start 52:

- Found in 6 of 59 ( 10.2% ) of genes in pham
- Manual Annotations of this start: 1 of 56
- Called 33.3% of time when present
- Phage (with cluster) where this start called: EpicDab\_19 (DM), GRU3\_18 (CW2),

Start 55:

- Found in 33 of 59 ( 55.9% ) of genes in pham
- Manual Annotations of this start: 2 of 56
- Called 6.1% of time when present
- Phage (with cluster) where this start called: Barkley26\_33 (G1), Liefie\_33 (G1),

Start 60:

- Found in 3 of 59 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 1 of 56
- Called 33.3% of time when present
- Phage (with cluster) where this start called: SallySpecial\_18 (DM),

Start 66:

- Found in 13 of 59 ( 22.0% ) of genes in pham
- Manual Annotations of this start: 2 of 56
- Called 23.1% of time when present
- Phage (with cluster) where this start called: Clown\_57 (DC2), DonkeyMan\_32 (DY), Reyja\_32 (DY),

### **Summary by clusters:**

There are 12 clusters represented in this pham: singleton, DM, G1, CW1, CW2, DB, I1, FF, DY, Y, DT, DC2,

Info for manual annotations of cluster CW1:

- Start number 39 was manually annotated 2 times for cluster CW1.

Info for manual annotations of cluster CW2:

- Start number 47 was manually annotated 2 times for cluster CW2.

Info for manual annotations of cluster DB:

- Start number 35 was manually annotated 1 time for cluster DB.
- Start number 40 was manually annotated 2 times for cluster DB.
- Start number 48 was manually annotated 1 time for cluster DB.

Info for manual annotations of cluster DC2:

- Start number 66 was manually annotated 1 time for cluster DC2.

Info for manual annotations of cluster DM:

- Start number 45 was manually annotated 1 time for cluster DM.
- Start number 52 was manually annotated 1 time for cluster DM.
- Start number 60 was manually annotated 1 time for cluster DM.

Info for manual annotations of cluster DT:

- Start number 45 was manually annotated 1 time for cluster DT.

Info for manual annotations of cluster DY:

- Start number 66 was manually annotated 1 time for cluster DY.

Info for manual annotations of cluster FF:

- Start number 22 was manually annotated 1 time for cluster FF.
- Start number 41 was manually annotated 1 time for cluster FF.

Info for manual annotations of cluster G1:

- Start number 42 was manually annotated 2 times for cluster G1.
- Start number 49 was manually annotated 29 times for cluster G1.
- Start number 55 was manually annotated 2 times for cluster G1.

Info for manual annotations of cluster I1:

- Start number 48 was manually annotated 3 times for cluster I1.

Info for manual annotations of cluster Y:

- Start number 39 was manually annotated 2 times for cluster Y.
- Start number 49 was manually annotated 2 times for cluster Y.

### **Gene Information:**

Gene: Angel\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for Angel\_33:

(16, 29489), (18, 29453), (19, 29447), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (101, 29048), (114, 28985), (117, 28979),

Gene: Annihilator\_33 Start: 29315, Stop: 28905, Start Num: 49

Candidate Starts for Annihilator\_33:

(16, 29480), (18, 29444), (19, 29438), (24, 29390), (Start: 49 @29315 has 31 MA's), (Start: 55 @29297 has 2 MA's), (67, 29234), (73, 29207), (77, 29186), (101, 29039), (114, 28976), (117, 28970),

Gene: Aroostook\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for Aroostook\_33:

(16, 29489), (18, 29453), (19, 29447), (24, 29399), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (77, 29195), (101, 29048), (114, 28985), (117, 28979),

Gene: Avrafan\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for Avrafan\_33:

(16, 29489), (18, 29453), (19, 29447), (24, 29399), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (77, 29195), (101, 29048), (114, 28985), (117, 28979),

Gene: BPs\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for BPs\_33:

(16, 29489), (18, 29453), (19, 29447), (24, 29399), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (77, 29195), (101, 29048), (114, 28985), (117, 28979),

Gene: Babsiella\_34 Start: 28570, Stop: 28175, Start Num: 48

Candidate Starts for Babsiella\_34:

(29, 28627), (Start: 35 @28606 has 1 MA's), (37, 28597), (Start: 39 @28588 has 4 MA's), (Start: 48 @28570 has 4 MA's), (64, 28510), (Start: 66 @28498 has 2 MA's), (71, 28471), (78, 28429), (88, 28384), (93, 28357), (95, 28348), (117, 28228),

Gene: Barkley26\_33 Start: 29328, Stop: 28936, Start Num: 55

Candidate Starts for Barkley26\_33:

(16, 29511), (18, 29475), (19, 29469), (Start: 49 @29346 has 31 MA's), (Start: 55 @29328 has 2 MA's), (67, 29265), (73, 29238), (85, 29175), (101, 29070), (114, 29007), (117, 29001), (122, 28977),

Gene: Bipper\_51 Start: 39965, Stop: 39576, Start Num: 49

Candidate Starts for Bipper\_51:

(Start: 49 @39965 has 31 MA's), (73, 39857), (74, 39851), (76, 39839), (77, 39836), (79, 39815), (84, 39797), (89, 39776), (91, 39764), (97, 39701), (105, 39662), (113, 39641), (114, 39638),

Gene: Bowser\_40 Start: 32553, Stop: 32140, Start Num: 40

Candidate Starts for Bowser\_40:

(27, 32598), (32, 32583), (Start: 40 @32553 has 2 MA's), (44, 32544), (Start: 48 @32538 has 4 MA's), (Start: 52 @32526 has 1 MA's), (56, 32508), (61, 32478), (Start: 66 @32457 has 2 MA's), (93, 32316), (94, 32310), (95, 32307), (105, 32220), (109, 32214), (110, 32211), (125, 32154),

Gene: BruceB\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for BruceB\_33:

(16, 29489), (18, 29453), (19, 29447), (24, 29399), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (77, 29195), (101, 29048), (114, 28985), (117, 28979),

Gene: Brujita\_34 Start: 29468, Stop: 29082, Start Num: 48

Candidate Starts for Brujita\_34:

(29, 29525), (Start: 35 @29504 has 1 MA's), (37, 29495), (Start: 39 @29486 has 4 MA's), (Start: 48 @29468 has 4 MA's), (64, 29408), (Start: 66 @29396 has 2 MA's), (71, 29369), (78, 29327), (88, 29282), (93, 29255), (95, 29246), (117, 29126),

Gene: Chance64\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for Chance64\_33:

(16, 29489), (18, 29453), (19, 29447), (24, 29399), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (77, 29195), (101, 29048), (114, 28985), (117, 28979),

Gene: Cherrybomb426\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for Cherrybomb426\_33:

(16, 29489), (18, 29453), (19, 29447), (24, 29399), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (77, 29195), (101, 29048), (114, 28985), (117, 28979),

Gene: Clown\_57 Start: 43040, Stop: 42723, Start Num: 66

Candidate Starts for Clown\_57:

(44, 43127), (Start: 49 @43118 has 31 MA's), (51, 43112), (Start: 66 @43040 has 2 MA's), (78, 42977), (81, 42959), (95, 42893), (112, 42788), (115, 42779), (121, 42755),

Gene: Coeur\_20 Start: 14347, Stop: 13994, Start Num: 47

Candidate Starts for Coeur\_20:

(Start: 41 @14356 has 1 MA's), (43, 14353), (Start: 47 @14347 has 2 MA's), (51, 14338), (57, 14311), (58, 14305), (Start: 60 @14293 has 1 MA's), (72, 14236), (82, 14185), (86, 14164), (90, 14149), (99, 14074), (101, 14071), (107, 14029), (114, 14008), (116, 14005),

Gene: Cracklewink\_51 Start: 39958, Stop: 39569, Start Num: 49

Candidate Starts for Cracklewink\_51:

(Start: 49 @39958 has 31 MA's), (73, 39850), (74, 39844), (76, 39832), (77, 39829), (79, 39808), (84, 39790), (89, 39769), (91, 39757), (97, 39694), (105, 39655), (113, 39634), (114, 39631),

Gene: CyranoPS\_18 Start: 12709, Stop: 12362, Start Num: 42

Candidate Starts for CyranoPS\_18:

(28, 12760), (33, 12745), (Start: 42 @12709 has 2 MA's), (67, 12625), (77, 12577),

Gene: DonkeyMan\_32 Start: 27496, Stop: 27185, Start Num: 66

Candidate Starts for DonkeyMan\_32:

(17, 27706), (20, 27691), (21, 27670), (24, 27649), (25, 27646), (Start: 49 @27574 has 31 MA's), (61, 27517), (Start: 66 @27496 has 2 MA's), (68, 27484), (75, 27451), (84, 27391), (95, 27340),

Gene: Elesar\_37 Start: 30914, Stop: 30393, Start Num: 22

Candidate Starts for Elesar\_37:

(Start: 22 @30914 has 1 MA's), (26, 30890), (31, 30878), (Start: 41 @30836 has 1 MA's), (Start: 48 @30824 has 4 MA's), (63, 30755), (Start: 66 @30740 has 2 MA's), (85, 30638), (95, 30590), (102, 30497),

Gene: Emperor\_20 Start: 14847, Stop: 14473, Start Num: 45

Candidate Starts for Emperor\_20:

(Start: 45 @14847 has 2 MA's), (50, 14838), (58, 14811), (62, 14790), (77, 14718), (86, 14670), (89, 14658), (100, 14583), (104, 14544), (120, 14499), (123, 14484),

Gene: EpicDab\_19 Start: 14735, Stop: 14277, Start Num: 52

Candidate Starts for EpicDab\_19:

(26, 14819), (38, 14771), (Start: 52 @14735 has 1 MA's), (53, 14732), (54, 14729), (56, 14717), (63, 14681), (64, 14678), (Start: 66 @14666 has 2 MA's), (68, 14654), (74, 14627), (83, 14570), (85, 14564), (95, 14516), (96, 14471), (98, 14462), (103, 14420), (124, 14351), (127, 14330), (129, 14300),

Gene: Ewald\_34 Start: 29912, Stop: 29541, Start Num: 45

Candidate Starts for Ewald\_34:

(23, 29993), (24, 29975), (30, 29957), (Start: 35 @29939 has 1 MA's), (Start: 45 @29912 has 2 MA's), (46, 29909), (Start: 49 @29903 has 31 MA's), (53, 29891), (56, 29876), (58, 29867), (63, 29843), (70, 29804), (77, 29774), (90, 29708),

Gene: Eyes\_38 Start: 32329, Stop: 31913, Start Num: 40

Candidate Starts for Eyes\_38:

(27, 32374), (32, 32359), (Start: 40 @32329 has 2 MA's), (44, 32320), (Start: 48 @32314 has 4 MA's), (Start: 52 @32302 has 1 MA's), (56, 32284), (61, 32254), (Start: 66 @32233 has 2 MA's), (93, 32092), (94, 32086), (95, 32083), (105, 31996), (109, 31990), (110, 31987), (119, 31960),

Gene: GRU3\_18 Start: 14485, Stop: 14162, Start Num: 52

Candidate Starts for GRU3\_18:

(Start: 47 @14497 has 2 MA's), (Start: 52 @14485 has 1 MA's), (56, 14467), (61, 14440), (65, 14422), (87, 14314), (108, 14188),

Gene: Grizzly\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for Grizzly\_33:

(16, 29489), (18, 29453), (19, 29447), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (85, 29153), (101, 29048), (114, 28985), (117, 28979), (122, 28955),

Gene: Halo\_33 Start: 29319, Stop: 28909, Start Num: 49

Candidate Starts for Halo\_33:

(16, 29484), (18, 29448), (19, 29442), (24, 29394), (Start: 49 @29319 has 31 MA's), (Start: 55 @29301 has 2 MA's), (67, 29238), (73, 29211), (77, 29190), (101, 29043), (114, 28980), (117, 28974),

Gene: Hilltopfarm\_53 Start: 40885, Stop: 40484, Start Num: 39

Candidate Starts for Hilltopfarm\_53:

(Start: 39 @40885 has 4 MA's), (Start: 49 @40864 has 31 MA's), (61, 40810), (73, 40756), (79, 40714), (89, 40675), (91, 40663), (101, 40588), (111, 40534), (113, 40528),

Gene: Hope\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for Hope\_33:

(16, 29489), (18, 29453), (19, 29447), (24, 29399), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (77, 29195), (101, 29048), (114, 28985), (117, 28979),

Gene: Hotshotbaby7\_33 Start: 29324, Stop: 28914, Start Num: 49



Candidate Starts for Hotshotbaby7\_33:

(16, 29489), (18, 29453), (19, 29447), (24, 29399), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (77, 29195), (101, 29048), (114, 28985), (117, 28979),

Gene: Island3\_34 Start: 29468, Stop: 29082, Start Num: 48

Candidate Starts for Island3\_34:

(29, 29525), (Start: 35 @29504 has 1 MA's), (37, 29495), (Start: 39 @29486 has 4 MA's), (Start: 48 @29468 has 4 MA's), (64, 29408), (Start: 66 @29396 has 2 MA's), (71, 29369), (78, 29327), (88, 29282), (93, 29255), (95, 29246), (117, 29126),

Gene: Jane\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for Jane\_33:

(16, 29489), (18, 29453), (19, 29447), (24, 29399), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (77, 29195), (101, 29048), (114, 28985), (117, 28979),

Gene: Jeanie\_19 Start: 13938, Stop: 13588, Start Num: 39

Candidate Starts for Jeanie\_19:

(31, 13974), (Start: 39 @13938 has 4 MA's), (Start: 49 @13917 has 31 MA's), (72, 13812), (86, 13740), (89, 13728), (91, 13716), (106, 13611),

Gene: Jonghyun\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for Jonghyun\_33:

(16, 29489), (18, 29453), (19, 29447), (24, 29399), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (77, 29195), (101, 29048), (114, 28985), (117, 28979),

Gene: JorRay\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for JorRay\_33:

(16, 29489), (18, 29453), (19, 29447), (24, 29399), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (77, 29195), (101, 29048), (114, 28985), (117, 28979),

Gene: Kasen3\_33 Start: 29325, Stop: 28915, Start Num: 49

Candidate Starts for Kasen3\_33:

(16, 29490), (18, 29454), (19, 29448), (Start: 49 @29325 has 31 MA's), (Start: 55 @29307 has 2 MA's), (67, 29244), (73, 29217), (85, 29154), (101, 29049), (114, 28986), (117, 28980), (122, 28956),

Gene: Liefie\_33 Start: 29304, Stop: 28912, Start Num: 55

Candidate Starts for Liefie\_33:

(16, 29487), (18, 29451), (19, 29445), (24, 29397), (Start: 49 @29322 has 31 MA's), (Start: 55 @29304 has 2 MA's), (67, 29241), (73, 29214), (77, 29193), (101, 29046), (114, 28983), (117, 28977),

Gene: LouisV14\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for LouisV14\_33:

(1, 30914), (2, 30821), (3, 30602), (4, 30569), (5, 30500), (6, 30452), (7, 30383), (8, 30134), (9, 30122), (10, 29981), (11, 29978), (12, 29885), (13, 29813), (14, 29696), (15, 29588), (16, 29489), (18, 29453), (19, 29447), (24, 29399), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (77, 29195), (101, 29048), (114, 28985), (117, 28979),

Gene: MagicMan\_40 Start: 32861, Stop: 32460, Start Num: 48

Candidate Starts for MagicMan\_40:

(27, 32921), (32, 32906), (Start: 40 @32876 has 2 MA's), (44, 32867), (Start: 48 @32861 has 4 MA's), (Start: 52 @32849 has 1 MA's), (56, 32831), (61, 32801), (Start: 66 @32780 has 2 MA's), (93, 32639), (94, 32633), (95, 32630), (105, 32543), (109, 32537), (110, 32534), (119, 32507),

Gene: Marmie\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for Marmie\_33:

(16, 29489), (18, 29453), (19, 29447), (24, 29399), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (77, 29195), (101, 29048), (114, 28985), (117, 28979),

Gene: McGonagall\_19 Start: 13938, Stop: 13588, Start Num: 39

Candidate Starts for McGonagall\_19:

(31, 13974), (Start: 39 @13938 has 4 MA's), (Start: 49 @13917 has 31 MA's), (72, 13812), (86, 13740), (89, 13728), (91, 13716), (106, 13611),

Gene: Mowgli\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for Mowgli\_33:

(16, 29489), (18, 29453), (19, 29447), (24, 29399), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (77, 29195), (101, 29048), (114, 28985), (117, 28979),

Gene: Olga\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for Olga\_33:

(16, 29489), (18, 29453), (19, 29447), (24, 29399), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (77, 29195), (101, 29048), (114, 28985), (117, 28979),

Gene: Paito\_33 Start: 29505, Stop: 29047, Start Num: 49

Candidate Starts for Paito\_33:

(Start: 49 @29505 has 31 MA's), (Start: 55 @29487 has 2 MA's), (62, 29448), (67, 29424), (73, 29397), (85, 29334), (101, 29229), (128, 29088),

Gene: Periodt\_33 Start: 29315, Stop: 28905, Start Num: 49

Candidate Starts for Periodt\_33:

(16, 29480), (18, 29444), (19, 29438), (24, 29390), (Start: 49 @29315 has 31 MA's), (Start: 55 @29297 has 2 MA's), (67, 29234), (73, 29207), (77, 29186), (101, 29039), (114, 28976), (117, 28970),

Gene: Phreak\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for Phreak\_33:

(16, 29489), (18, 29453), (19, 29447), (24, 29399), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (77, 29195), (101, 29048), (114, 28985), (117, 28979),

Gene: Plagueis\_33 Start: 29159, Stop: 28749, Start Num: 49

Candidate Starts for Plagueis\_33:

(16, 29324), (18, 29288), (19, 29282), (Start: 49 @29159 has 31 MA's), (Start: 55 @29141 has 2 MA's), (67, 29078), (73, 29051), (101, 28883), (114, 28820), (117, 28814),

Gene: Popper\_41 Start: 29991, Stop: 29548, Start Num: 41

Candidate Starts for Popper\_41:

(Start: 22 @30069 has 1 MA's), (26, 30045), (31, 30033), (Start: 41 @29991 has 1 MA's), (Start: 48 @29979 has 4 MA's), (63, 29910), (Start: 66 @29895 has 2 MA's), (95, 29745), (102, 29652),

Gene: Rabbs\_33 Start: 29407, Stop: 28997, Start Num: 49

Candidate Starts for Rabbs\_33:

(16, 29572), (18, 29536), (19, 29530), (Start: 42 @29419 has 2 MA's), (Start: 49 @29407 has 31 MA's), (Start: 55 @29389 has 2 MA's), (73, 29299), (77, 29278), (101, 29131), (117, 29062), (122, 29038),

Gene: Rahul\_20 Start: 14354, Stop: 14019, Start Num: 47

Candidate Starts for Rahul\_20:

(Start: 47 @14354 has 2 MA's), (56, 14327), (59, 14309), (Start: 60 @14303 has 1 MA's), (61, 14297), (69, 14255), (74, 14237), (82, 14195), (101, 14090),

Gene: Reyja\_32 Start: 26445, Stop: 26137, Start Num: 66

Candidate Starts for Reyja\_32:

(17, 26655), (20, 26640), (21, 26619), (24, 26598), (Start: 49 @26523 has 31 MA's), (61, 26466), (Start: 66 @26445 has 2 MA's), (68, 26433), (84, 26340), (95, 26289),

Gene: SallySpecial\_18 Start: 14300, Stop: 13995, Start Num: 60

Candidate Starts for SallySpecial\_18:

(34, 14387), (36, 14381), (38, 14369), (Start: 47 @14351 has 2 MA's), (Start: 60 @14300 has 1 MA's), (62, 14291), (67, 14267), (69, 14252), (72, 14243), (77, 14219), (80, 14195), (87, 14168), (89, 14159), (92, 14141), (100, 14084), (104, 14045), (111, 14027), (118, 14009),

Gene: Schnabeltier\_40 Start: 32529, Stop: 32092, Start Num: 35

Candidate Starts for Schnabeltier\_40:

(Start: 35 @32529 has 1 MA's), (Start: 48 @32493 has 4 MA's), (Start: 52 @32481 has 1 MA's), (56, 32463), (61, 32433), (Start: 66 @32412 has 2 MA's), (71, 32385), (78, 32343), (93, 32271), (94, 32265), (95, 32262), (105, 32175), (109, 32169), (110, 32166), (119, 32139),

Gene: ShaboiShabazz\_33 Start: 29324, Stop: 28914, Start Num: 49

Candidate Starts for ShaboiShabazz\_33:

(16, 29489), (18, 29453), (19, 29447), (24, 29399), (Start: 49 @29324 has 31 MA's), (Start: 55 @29306 has 2 MA's), (67, 29243), (73, 29216), (77, 29195), (101, 29048), (114, 28985), (117, 28979),

Gene: Sizemore\_33 Start: 29325, Stop: 28915, Start Num: 49

Candidate Starts for Sizemore\_33:

(16, 29490), (18, 29454), (19, 29448), (Start: 49 @29325 has 31 MA's), (Start: 55 @29307 has 2 MA's), (67, 29244), (73, 29217), (85, 29154), (101, 29049), (114, 28986), (117, 28980), (122, 28956),

Gene: Sweets\_33 Start: 29319, Stop: 28909, Start Num: 49

Candidate Starts for Sweets\_33:

(16, 29484), (18, 29448), (19, 29442), (24, 29394), (Start: 49 @29319 has 31 MA's), (Start: 55 @29301 has 2 MA's), (67, 29238), (73, 29211), (77, 29190), (101, 29043), (114, 28980), (117, 28974),

Gene: Taheera\_33 Start: 29454, Stop: 29032, Start Num: 42

Candidate Starts for Taheera\_33:

(16, 29607), (18, 29571), (19, 29565), (Start: 42 @29454 has 2 MA's), (Start: 49 @29442 has 31 MA's), (Start: 55 @29424 has 2 MA's), (67, 29361), (73, 29334), (77, 29313), (101, 29166), (117, 29097), (122, 29073), (126, 29052),

Gene: Terror\_33 Start: 29454, Stop: 29032, Start Num: 42

Candidate Starts for Terror\_33:

(16, 29607), (18, 29571), (19, 29565), (Start: 42 @29454 has 2 MA's), (Start: 49 @29442 has 31 MA's), (Start: 55 @29424 has 2 MA's), (67, 29361), (73, 29334), (77, 29313), (101, 29166), (117, 29097), (122, 29073), (126, 29052),

Gene: TomBrady\_33 Start: 29325, Stop: 28915, Start Num: 49

Candidate Starts for TomBrady\_33:

(16, 29490), (18, 29454), (19, 29448), (24, 29400), (Start: 49 @29325 has 31 MA's), (Start: 55 @29307 has 2 MA's), (67, 29244), (73, 29217), (77, 29196), (101, 29049), (114, 28986), (117, 28980),

Gene: Typha\_53 Start: 41198, Stop: 40797, Start Num: 39

Candidate Starts for Typha\_53:

(Start: 39 @41198 has 4 MA's), (Start: 49 @41177 has 31 MA's), (61, 41123), (73, 41069), (79, 41027), (89, 40988), (91, 40976), (101, 40901), (111, 40847), (113, 40841),