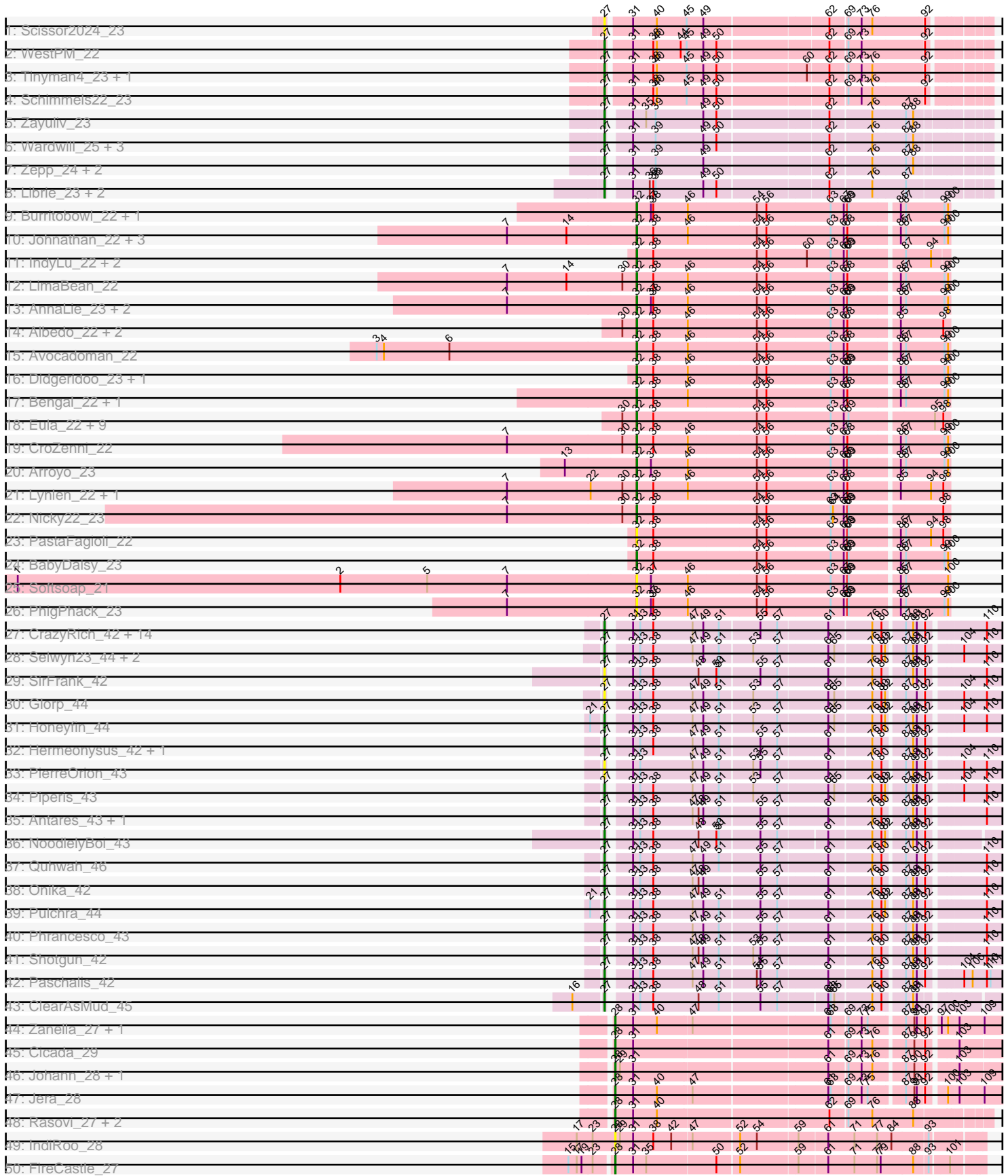
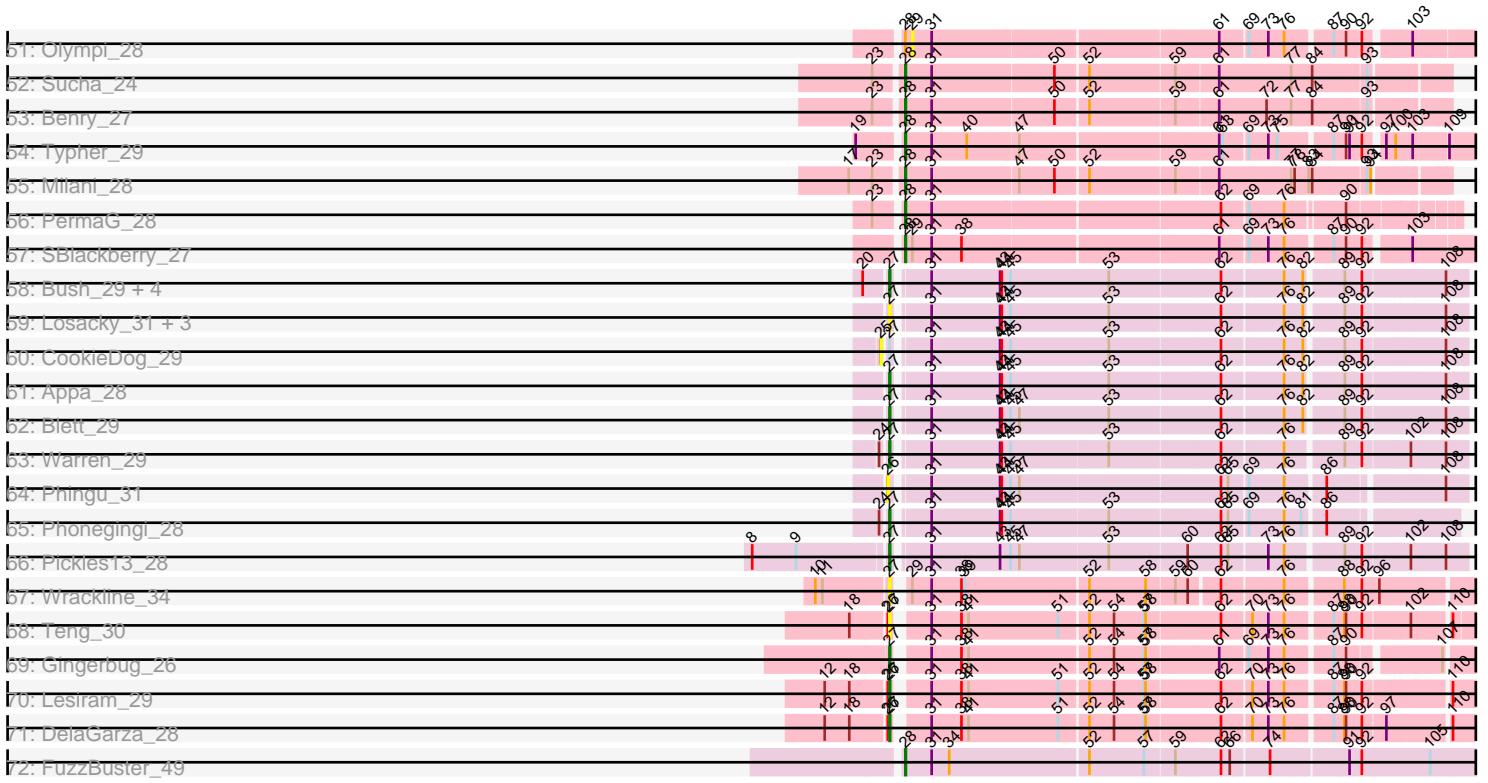


# Pham 200039



Pham 200039



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 200039 Report

This analysis was run 01/18/25 on database version 583.

Pham number 200039 has 131 members, 29 are drafts.

Phages represented in each track:

- Track 1 : Scissor2024\_23
- Track 2 : WestPM\_22
- Track 3 : Tinyman4\_23, HerculesXL\_23
- Track 4 : Schimmels22\_23
- Track 5 : Zayuliv\_23
- Track 6 : Wardwill\_25, LilTerminator\_24, QuadZero\_23, Hasitha\_23
- Track 7 : Zepp\_24, Greenlvy\_23, BaronJohn\_24
- Track 8 : Librie\_23, Fulton\_23, CaptainRex\_23
- Track 9 : Burritobowl\_22, DickRichards\_22
- Track 10 : Johnathan\_22, Albright\_22, Doobus\_22, Cashington\_22
- Track 11 : IndyLu\_22, Finalfrontier\_23, Kate33\_22
- Track 12 : LimaBean\_22
- Track 13 : AnnaLie\_23, SansAfet\_22, BelmontSKP\_23
- Track 14 : Albedo\_22, Phisb\_22, BubbaBear\_22
- Track 15 : Avocadoman\_22
- Track 16 : Didgeridoo\_23, Lahqtemish\_22
- Track 17 : Bengal\_22, Abigail\_22
- Track 18 : Eula\_22, SarBear\_22, Swervy\_22, Slay\_22, Jabb\_22, MsUbiquitous\_22, TukTuk\_22, CupcakePrincess\_22, Jovita\_22, QMacho\_23
- Track 19 : CroZenni\_22
- Track 20 : Arroyo\_23
- Track 21 : Lynlen\_22, Kenzers\_22
- Track 22 : Nicky22\_23
- Track 23 : PastaFagioli\_22
- Track 24 : BabyDaisy\_23
- Track 25 : Softsoap\_21
- Track 26 : PhigPhack\_23
- Track 27 : CrazyRich\_42, Ramiel05\_42, Kowalski\_42, Busephilis\_42, Ganandorf\_42, Cranjis\_44, KaiHaiDragon\_43, EarickHC\_43, Crisis\_44, PhedwardCullen\_41, Savannah\_42, Phorgeous\_42, Jollipop\_43, LittleFortune\_44, PiperSansNom\_43
- Track 28 : Selwyn23\_44, Jefe\_43, Yeti\_43
- Track 29 : SirFrank\_42
- Track 30 : Glorp\_44
- Track 31 : Honeyfin\_44
- Track 32 : Hermeonysus\_42, Scumberland\_44
- Track 33 : PierreOrion\_43

- Track 34 : Piperis\_43
- Track 35 : Antares\_43, BrazzalePHS\_42
- Track 36 : NoodlelyBoi\_43
- Track 37 : Quhwah\_46
- Track 38 : Onika\_42
- Track 39 : Pulchra\_44
- Track 40 : Phrancesco\_43
- Track 41 : Shotgun\_42
- Track 42 : Paschalis\_42
- Track 43 : ClearAsMud\_45
- Track 44 : Zanella\_27, TurboVicky\_27
- Track 45 : Cicada\_29
- Track 46 : Johann\_28, Goodman\_28
- Track 47 : Jera\_28
- Track 48 : Rasovi\_27, Linayshia\_27, Htur\_27
- Track 49 : IndiRoo\_28
- Track 50 : FireCastle\_27
- Track 51 : Olympi\_28
- Track 52 : Sucha\_24
- Track 53 : Benry\_27
- Track 54 : Typher\_29
- Track 55 : Milani\_28
- Track 56 : PermaG\_28
- Track 57 : SBlackberry\_27
- Track 58 : Bush\_29, Antuna\_29, MenE\_29, Carrillo\_30, Dropshot\_28
- Track 59 : Losacky\_31, Jakelyne\_31, Guzman\_30, PhillyJawn\_29
- Track 60 : CookieDog\_29
- Track 61 : Appa\_28
- Track 62 : Blett\_29
- Track 63 : Warren\_29
- Track 64 : Phingu\_31
- Track 65 : Phonegingi\_28
- Track 66 : Pickles13\_28
- Track 67 : Wrackline\_34
- Track 68 : Teng\_30
- Track 69 : Gingerbug\_26
- Track 70 : Lesiram\_29
- Track 71 : DelaGarza\_28
- Track 72 : FuzzBuster\_49

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

The start number called the most often in the published annotations is 27, it was called in 55 of the 102 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Antares\_43, Antuna\_29, Appa\_28, BaronJohn\_24, Blett\_29, BrazzalePHS\_42, Busephilis\_42, Bush\_29, CaptainRex\_23, Carrillo\_30, ClearAsMud\_45, Cranjis\_44, CrazyRich\_42, Crisis\_44, DelaGarza\_28, Dropshot\_28, EarickHC\_43, Fulton\_23, Ganandorf\_42, Gingerbug\_26, Glorp\_44, Greenlvy\_23, Guzman\_30, Hasitha\_23,

HerculesXL\_23, Hermeonysus\_42, Honeyfin\_44, Jakelyne\_31, Jefe\_43, Jollipop\_43, KaiHaiDragon\_43, Kowalski\_42, Lesiram\_29, Librie\_23, LilTerminator\_24, LittleFortune\_44, Losacky\_31, MenE\_29, NoodlelyBoi\_43, Onika\_42, Paschalis\_42, PhedwardCullen\_41, PhillyJawn\_29, Phonegingi\_28, Phorgeous\_42, Phrancesco\_43, Pickles13\_28, PierreOrion\_43, PiperSansNom\_43, Piperis\_43, Pulchra\_44, QuadZero\_23, Quhwah\_46, Ramiel05\_42, Savannah\_42, Schimmels22\_23, Scissor2024\_23, Scumberland\_44, Selwyn23\_44, Shotgun\_42, SirFrank\_42, Teng\_30, Tinyman4\_23, Wardwill\_25, Warren\_29, WestPM\_22, Wrackline\_34, Yeti\_43, Zayuliv\_23, Zepp\_24,

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

- CookieDog\_29,

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

- Abigail\_22, Albedo\_22, Albright\_22, AnnaLie\_23, Arroyo\_23, Avocadoman\_22, BabyDaisy\_23, BelmontSKP\_23, Bengal\_22, Benry\_27, BubbaBear\_22, Burritobowl\_22, Cashington\_22, Cicada\_29, CroZenni\_22, CupcakePrincess\_22, DickRichards\_22, Didgeridoo\_23, Doobus\_22, Eula\_22, Finalfrontier\_23, FireCastle\_27, FuzzBuster\_49, Goodman\_28, Htur\_27, IndiRoo\_28, IndyLu\_22, Jabb\_22, Jera\_28, Johann\_28, Johnathan\_22, Jovita\_22, Kate33\_22, Kenzers\_22, Lahqtemish\_22, LimaBean\_22, Linayshia\_27, Lynlen\_22, Milani\_28, MsUbiquitous\_22, Nicky22\_23, Olympi\_28, PastaFagioli\_22, PermaG\_28, PhigPhack\_23, Phingu\_31, Phisb\_22, QMacho\_23, Rasovi\_27, SBlackberry\_27, SansAfet\_22, SarBear\_22, Slay\_22, Softsoap\_21, Sucha\_24, Swervy\_22, TukTuk\_22, TurboVicky\_27, Typher\_29, Zanella\_27,

### Summary by start number:

Start 25:

- Found in 1 of 131 ( 0.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CookieDog\_29 (GA),

Start 26:

- Found in 4 of 131 ( 3.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Phingu\_31 (GA),

Start 27:

- Found in 71 of 131 ( 54.2% ) of genes in pham
- Manual Annotations of this start: 55 of 102
- Called 98.6% of time when present
- Phage (with cluster) where this start called: Antares\_43 (EC), Antuna\_29 (GA), Appa\_28 (GA), BaronJohn\_24 (EA5), Blett\_29 (GA), BrazzalePHS\_42 (EC), Busephilis\_42 (EC), Bush\_29 (GA), CaptainRex\_23 (EA5), Carrillo\_30 (GA), ClearAsMud\_45 (EC), Cranjis\_44 (EC), CrazyRich\_42 (EC), Crisis\_44 (EC), DelaGarza\_28 (GF), Dropshot\_28 (GA), EarickHC\_43 (EC), Fulton\_23 (EA5), Ganandorf\_42 (EC), Gingerbug\_26 (GF), Glorp\_44 (EC), Greenlvy\_23 (EA5), Guzman\_30 (GA), Hasitha\_23 (EA5), HerculesXL\_23 (EA11), Hermeonysus\_42 (EC), Honeyfin\_44 (EC), Jakelyne\_31 (GA), Jefe\_43 (EC), Jollipop\_43 (EC), KaiHaiDragon\_43 (EC), Kowalski\_42 (EC), Lesiram\_29 (GF), Librie\_23 (EA5),

LilTerminator\_24 (EA5), LittleFortune\_44 (EC), Losacky\_31 (GA), MenE\_29 (GA), NoodlelyBoi\_43 (EC), Onika\_42 (EC), Paschalis\_42 (EC), PhedwardCullen\_41 (EC), PhillyJawn\_29 (GA), Phonegingi\_28 (GA), Phorgeous\_42 (EC), Phrancesco\_43 (EC), Pickles13\_28 (GA), PierreOrion\_43 (EC), PiperSansNom\_43 (EC), Piperis\_43 (EC), Pulchra\_44 (EC), QuadZero\_23 (EA5), Quhwah\_46 (EC), Ramiel05\_42 (EC), Savannah\_42 (EC), Schimmels22\_23 (EA11), Scissor2024\_23 (EA11), Scumberland\_44 (EC), Selwyn23\_44 (EC), Shotgun\_42 (EC), SirFrank\_42 (EC), Teng\_30 (GF), Tinyman4\_23 (EA11), Wardwill\_25 (EA5), Warren\_29 (GA), WestPM\_22 (EA11), Wrackline\_34 (GF), Yeti\_43 (EC), Zayuliv\_23 (EA5), Zepp\_24 (EA5),

#### Start 28:

- Found in 19 of 131 ( 14.5% ) of genes in pham
- Manual Annotations of this start: 16 of 102
- Called 94.7% of time when present
- Phage (with cluster) where this start called: Benry\_27 (EJ), Cicada\_29 (EJ), FireCastle\_27 (EJ), FuzzBuster\_49 (singleton), Goodman\_28 (EJ), Htur\_27 (EJ), IndiRoo\_28 (EJ), Jera\_28 (EJ), Johann\_28 (EJ), Linayshia\_27 (EJ), Milani\_28 (EJ), PermaG\_28 (EJ), Rasovi\_27 (EJ), SBlackberry\_27 (EJ), Sucha\_24 (EJ), TurboVicky\_27 (EJ), Typher\_29 (EJ), Zanella\_27 (EJ),

#### Start 29:

- Found in 6 of 131 ( 4.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Olympi\_28 (EJ),

#### Start 32:

- Found in 40 of 131 ( 30.5% ) of genes in pham
- Manual Annotations of this start: 31 of 102
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abigail\_22 (EB), Albedo\_22 (EB), Albright\_22 (EB), AnnaLie\_23 (EB), Arroyo\_23 (EB), Avocadoman\_22 (EB), BabyDaisy\_23 (EB), BelmontSKP\_23 (EB), Bengal\_22 (EB), BubbaBear\_22 (EB), Burritobowl\_22 (EB), Cashington\_22 (EB), CroZenni\_22 (EB), CupcakePrincess\_22 (EB), DickRichards\_22 (EB), Didgeridoo\_23 (EB), Doobus\_22 (EB), Eula\_22 (EB), Finalfrontier\_23 (EB), IndyLu\_22 (EB), Jabb\_22 (EB), Johnathan\_22 (EB), Jovita\_22 (EB), Kate33\_22 (EB), Kenzers\_22 (EB), Lahqtemish\_22 (EB), LimaBean\_22 (EB), Lynlen\_22 (EB), MsUbiquitous\_22 (EB), Nicky22\_23 (EB), PastaFagioli\_22 (EB), PhigPhack\_23 (EB), Phisb\_22 (EB), QMacho\_23 (EB), SansAfet\_22 (EB), SarBear\_22 (EB), Slay\_22 (EB), Softsoap\_21 (EB), Swervy\_22 (EB), TukTuk\_22 (EB),

### Summary by clusters:

There are 8 clusters represented in this pham: singleton, EA11, EJ, EC, EB, GF, GA, EA5,

Info for manual annotations of cluster EA11:

- Start number 27 was manually annotated 4 times for cluster EA11.

Info for manual annotations of cluster EA5:

- Start number 27 was manually annotated 8 times for cluster EA5.

Info for manual annotations of cluster EB:

- Start number 32 was manually annotated 31 times for cluster EB.

Info for manual annotations of cluster EC:

- Start number 27 was manually annotated 31 times for cluster EC.

Info for manual annotations of cluster EJ:

- Start number 28 was manually annotated 15 times for cluster EJ.

Info for manual annotations of cluster GA:

- Start number 27 was manually annotated 9 times for cluster GA.

Info for manual annotations of cluster GF:

- Start number 27 was manually annotated 3 times for cluster GF.

### ***Gene Information:***

Gene: Abigail\_22 Start: 18166, Stop: 18915, Start Num: 32

Candidate Starts for Abigail\_22:

(Start: 32 @18166 has 31 MA's), (38, 18208), (46, 18292), (54, 18460), (56, 18484), (63, 18640), (67, 18673), (68, 18682), (85, 18799), (87, 18811), (99, 18901), (100, 18910),

Gene: Albedo\_22 Start: 18037, Stop: 18792, Start Num: 32

Candidate Starts for Albedo\_22:

(30, 18001), (Start: 32 @18037 has 31 MA's), (38, 18079), (46, 18163), (54, 18331), (56, 18355), (63, 18514), (67, 18547), (68, 18556), (85, 18673), (98, 18775),

Gene: Albright\_22 Start: 17924, Stop: 18673, Start Num: 32

Candidate Starts for Albright\_22:

(7, 17600), (14, 17750), (Start: 32 @17924 has 31 MA's), (38, 17966), (46, 18050), (54, 18218), (56, 18242), (63, 18398), (67, 18431), (68, 18440), (85, 18557), (87, 18569), (99, 18659), (100, 18668),

Gene: AnnaLie\_23 Start: 18353, Stop: 19102, Start Num: 32

Candidate Starts for AnnaLie\_23:

(7, 18029), (Start: 32 @18353 has 31 MA's), (37, 18389), (38, 18395), (46, 18479), (54, 18647), (56, 18671), (63, 18827), (67, 18860), (68, 18869), (69, 18872), (85, 18986), (87, 18998), (99, 19088), (100, 19097),

Gene: Antares\_43 Start: 30215, Stop: 31120, Start Num: 27

Candidate Starts for Antares\_43:

(Start: 27 @30215 has 55 MA's), (31, 30260), (33, 30278), (38, 30311), (47, 30410), (48, 30425), (49, 30437), (51, 30476), (55, 30572), (57, 30614), (61, 30731), (76, 30833), (80, 30854), (87, 30899), (88, 30917), (91, 30926), (92, 30941), (110, 31067),

Gene: Antuna\_29 Start: 18621, Stop: 19514, Start Num: 27

Candidate Starts for Antuna\_29:

(20, 18588), (Start: 27 @18621 has 55 MA's), (31, 18669), (43, 18786), (44, 18789), (45, 18804), (53, 18972), (62, 19152), (76, 19251), (82, 19281), (89, 19335), (92, 19356), (108, 19482),

Gene: Appa\_28 Start: 18486, Stop: 19379, Start Num: 27

Candidate Starts for Appa\_28:

(Start: 27 @18486 has 55 MA's), (31, 18534), (43, 18651), (44, 18654), (45, 18669), (53, 18837), (62, 19017), (76, 19116), (82, 19146), (89, 19200), (92, 19221), (108, 19347),

Gene: Arroyo\_23 Start: 18553, Stop: 19302, Start Num: 32

Candidate Starts for Arroyo\_23:

(13, 18376), (Start: 32 @18553 has 31 MA's), (37, 18589), (46, 18679), (54, 18847), (56, 18871), (63, 19027), (67, 19060), (68, 19069), (69, 19072), (85, 19186), (87, 19198), (99, 19288), (100, 19297),

Gene: Avocadoman\_22 Start: 18108, Stop: 18857, Start Num: 32

Candidate Starts for Avocadoman\_22:

(3, 17457), (4, 17475), (6, 17640), (Start: 32 @18108 has 31 MA's), (38, 18150), (46, 18234), (54, 18402), (56, 18426), (63, 18582), (67, 18615), (68, 18624), (85, 18741), (87, 18753), (99, 18843), (100, 18852),

Gene: BabyDaisy\_23 Start: 18169, Stop: 18918, Start Num: 32

Candidate Starts for BabyDaisy\_23:

(Start: 32 @18169 has 31 MA's), (38, 18211), (54, 18463), (56, 18487), (63, 18643), (67, 18676), (68, 18685), (69, 18688), (85, 18802), (87, 18814), (99, 18904), (100, 18913),

Gene: BaronJohn\_24 Start: 17331, Stop: 18200, Start Num: 27

Candidate Starts for BaronJohn\_24:

(Start: 27 @17331 has 55 MA's), (31, 17376), (39, 17433), (49, 17553), (62, 17847), (76, 17943), (87, 18024), (88, 18042),

Gene: BelmontSKP\_23 Start: 18353, Stop: 19102, Start Num: 32

Candidate Starts for BelmontSKP\_23:

(7, 18029), (Start: 32 @18353 has 31 MA's), (37, 18389), (38, 18395), (46, 18479), (54, 18647), (56, 18671), (63, 18827), (67, 18860), (68, 18869), (69, 18872), (85, 18986), (87, 18998), (99, 19088), (100, 19097),

Gene: Bengal\_22 Start: 17941, Stop: 18690, Start Num: 32

Candidate Starts for Bengal\_22:

(Start: 32 @17941 has 31 MA's), (38, 17983), (46, 18067), (54, 18235), (56, 18259), (63, 18415), (67, 18448), (68, 18457), (85, 18574), (87, 18586), (99, 18676), (100, 18685),

Gene: Benry\_27 Start: 19174, Stop: 20046, Start Num: 28

Candidate Starts for Benry\_27:

(23, 19132), (Start: 28 @19174 has 16 MA's), (31, 19219), (50, 19423), (52, 19474), (59, 19609), (61, 19678), (72, 19759), (77, 19801), (84, 19837), (93, 19924),

Gene: Blett\_29 Start: 18633, Stop: 19526, Start Num: 27

Candidate Starts for Blett\_29:

(Start: 27 @18633 has 55 MA's), (31, 18681), (43, 18798), (44, 18801), (45, 18816), (47, 18831), (53, 18984), (62, 19164), (76, 19263), (82, 19293), (89, 19347), (92, 19368), (108, 19494),

Gene: BrazzalePHS\_42 Start: 30010, Stop: 30915, Start Num: 27

Candidate Starts for BrazzalePHS\_42:

(Start: 27 @30010 has 55 MA's), (31, 30055), (33, 30073), (38, 30106), (47, 30205), (48, 30220), (49, 30232), (51, 30271), (55, 30367), (57, 30409), (61, 30526), (76, 30628), (80, 30649), (87, 30694), (88, 30712), (91, 30721), (92, 30736), (110, 30862),

Gene: BubbaBear\_22 Start: 18037, Stop: 18792, Start Num: 32



Candidate Starts for BubbaBear\_22:

(30, 18001), (Start: 32 @18037 has 31 MA's), (38, 18079), (46, 18163), (54, 18331), (56, 18355), (63, 18514), (67, 18547), (68, 18556), (85, 18673), (98, 18775),

Gene: Burritobowl\_22 Start: 18109, Stop: 18858, Start Num: 32

Candidate Starts for Burritobowl\_22:

(Start: 32 @18109 has 31 MA's), (37, 18145), (38, 18151), (46, 18235), (54, 18403), (56, 18427), (63, 18583), (67, 18616), (68, 18625), (69, 18628), (85, 18742), (87, 18754), (99, 18844), (100, 18853),

Gene: Busephilis\_42 Start: 29951, Stop: 30856, Start Num: 27

Candidate Starts for Busephilis\_42:

(Start: 27 @29951 has 55 MA's), (31, 29996), (33, 30014), (38, 30047), (47, 30146), (49, 30173), (51, 30212), (55, 30308), (57, 30350), (61, 30467), (76, 30569), (80, 30590), (87, 30635), (88, 30653), (91, 30662), (92, 30677), (110, 30803),

Gene: Bush\_29 Start: 18611, Stop: 19504, Start Num: 27

Candidate Starts for Bush\_29:

(20, 18578), (Start: 27 @18611 has 55 MA's), (31, 18659), (43, 18776), (44, 18779), (45, 18794), (53, 18962), (62, 19142), (76, 19241), (82, 19271), (89, 19325), (92, 19346), (108, 19472),

Gene: CaptainRex\_23 Start: 16759, Stop: 17634, Start Num: 27

Candidate Starts for CaptainRex\_23:

(Start: 27 @16759 has 55 MA's), (31, 16804), (36, 16846), (38, 16855), (39, 16861), (49, 16981), (50, 17014), (62, 17275), (76, 17371), (87, 17452),

Gene: Carrillo\_30 Start: 18590, Stop: 19483, Start Num: 27

Candidate Starts for Carrillo\_30:

(20, 18557), (Start: 27 @18590 has 55 MA's), (31, 18638), (43, 18755), (44, 18758), (45, 18773), (53, 18941), (62, 19121), (76, 19220), (82, 19250), (89, 19304), (92, 19325), (108, 19451),

Gene: Cashington\_22 Start: 17958, Stop: 18707, Start Num: 32

Candidate Starts for Cashington\_22:

(7, 17634), (14, 17784), (Start: 32 @17958 has 31 MA's), (38, 18000), (46, 18084), (54, 18252), (56, 18276), (63, 18432), (67, 18465), (68, 18474), (85, 18591), (87, 18603), (99, 18693), (100, 18702),

Gene: Cicada\_29 Start: 20694, Stop: 21569, Start Num: 28

Candidate Starts for Cicada\_29:

(Start: 28 @20694 has 16 MA's), (31, 20739), (61, 21204), (69, 21246), (73, 21279), (76, 21306), (87, 21372), (90, 21393), (92, 21414), (103, 21477),

Gene: ClearAsMud\_45 Start: 30109, Stop: 30996, Start Num: 27

Candidate Starts for ClearAsMud\_45:

(16, 30037), (Start: 27 @30109 has 55 MA's), (31, 30154), (33, 30172), (38, 30205), (48, 30319), (51, 30370), (55, 30466), (57, 30508), (61, 30619), (63, 30625), (65, 30634), (76, 30721), (80, 30742), (87, 30787), (88, 30805), (91, 30814),

Gene: CookieDog\_29 Start: 18602, Stop: 19501, Start Num: 25

Candidate Starts for CookieDog\_29:

(25, 18602), (Start: 27 @18608 has 55 MA's), (31, 18656), (43, 18773), (44, 18776), (45, 18791), (53, 18959), (62, 19139), (76, 19238), (82, 19268), (89, 19322), (92, 19343), (108, 19469),

Gene: Cranjjs\_44 Start: 30170, Stop: 31075, Start Num: 27

Candidate Starts for Cranjjs\_44:

(Start: 27 @30170 has 55 MA's), (31, 30215), (33, 30233), (38, 30266), (47, 30365), (49, 30392), (51, 30431), (55, 30527), (57, 30569), (61, 30686), (76, 30788), (80, 30809), (87, 30854), (88, 30872), (91, 30881), (92, 30896), (110, 31022),

Gene: CrazyRich\_42 Start: 29979, Stop: 30884, Start Num: 27

Candidate Starts for CrazyRich\_42:

(Start: 27 @29979 has 55 MA's), (31, 30024), (33, 30042), (38, 30075), (47, 30174), (49, 30201), (51, 30240), (55, 30336), (57, 30378), (61, 30495), (76, 30597), (80, 30618), (87, 30663), (88, 30681), (91, 30690), (92, 30705), (110, 30831),

Gene: Crisis\_44 Start: 29970, Stop: 30875, Start Num: 27

Candidate Starts for Crisis\_44:

(Start: 27 @29970 has 55 MA's), (31, 30015), (33, 30033), (38, 30066), (47, 30165), (49, 30192), (51, 30231), (55, 30327), (57, 30369), (61, 30486), (76, 30588), (80, 30609), (87, 30654), (88, 30672), (91, 30681), (92, 30696), (110, 30822),

Gene: CroZenni\_22 Start: 17944, Stop: 18696, Start Num: 32

Candidate Starts for CroZenni\_22:

(7, 17620), (30, 17908), (Start: 32 @17944 has 31 MA's), (38, 17986), (46, 18070), (54, 18238), (56, 18262), (63, 18421), (67, 18454), (68, 18463), (85, 18580), (87, 18592), (99, 18682), (100, 18691),

Gene: CupcakePrincess\_22 Start: 18064, Stop: 18816, Start Num: 32

Candidate Starts for CupcakePrincess\_22:

(30, 18028), (Start: 32 @18064 has 31 MA's), (38, 18106), (54, 18358), (56, 18382), (63, 18541), (67, 18574), (69, 18586), (95, 18781), (98, 18799),

Gene: DelaGarza\_28 Start: 19055, Stop: 19942, Start Num: 27

Candidate Starts for DelaGarza\_28:

(12, 18953), (18, 18995), (26, 19052), (Start: 27 @19055 has 55 MA's), (31, 19100), (38, 19151), (41, 19163), (51, 19316), (52, 19361), (54, 19403), (57, 19454), (58, 19457), (62, 19577), (70, 19619), (73, 19646), (76, 19673), (87, 19739), (88, 19757), (90, 19760), (92, 19781), (97, 19817), (110, 19907),

Gene: DickRichards\_22 Start: 18439, Stop: 19188, Start Num: 32

Candidate Starts for DickRichards\_22:

(Start: 32 @18439 has 31 MA's), (37, 18475), (38, 18481), (46, 18565), (54, 18733), (56, 18757), (63, 18913), (67, 18946), (68, 18955), (69, 18958), (85, 19072), (87, 19084), (99, 19174), (100, 19183),

Gene: Didgeridoo\_23 Start: 18171, Stop: 18920, Start Num: 32

Candidate Starts for Didgeridoo\_23:

(Start: 32 @18171 has 31 MA's), (38, 18213), (46, 18297), (54, 18465), (56, 18489), (63, 18645), (67, 18678), (68, 18687), (69, 18690), (85, 18804), (87, 18816), (99, 18906), (100, 18915),

Gene: Doobus\_22 Start: 18275, Stop: 19024, Start Num: 32

Candidate Starts for Doobus\_22:

(7, 17951), (14, 18101), (Start: 32 @18275 has 31 MA's), (38, 18317), (46, 18401), (54, 18569), (56, 18593), (63, 18749), (67, 18782), (68, 18791), (85, 18908), (87, 18920), (99, 19010), (100, 19019),

Gene: Dropshot\_28 Start: 18483, Stop: 19376, Start Num: 27

Candidate Starts for Dropshot\_28:

(20, 18450), (Start: 27 @18483 has 55 MA's), (31, 18531), (43, 18648), (44, 18651), (45, 18666), (53, 18834), (62, 19014), (76, 19113), (82, 19143), (89, 19197), (92, 19218), (108, 19344),

Gene: EarickHC\_43 Start: 29893, Stop: 30798, Start Num: 27

Candidate Starts for EarickHC\_43:

(Start: 27 @29893 has 55 MA's), (31, 29938), (33, 29956), (38, 29989), (47, 30088), (49, 30115), (51, 30154), (55, 30250), (57, 30292), (61, 30409), (76, 30511), (80, 30532), (87, 30577), (88, 30595), (91, 30604), (92, 30619), (110, 30745),

Gene: Eula\_22 Start: 18025, Stop: 18777, Start Num: 32

Candidate Starts for Eula\_22:

(30, 17989), (Start: 32 @18025 has 31 MA's), (38, 18067), (54, 18319), (56, 18343), (63, 18502), (67, 18535), (69, 18547), (95, 18742), (98, 18760),

Gene: Finalfrontier\_23 Start: 18538, Stop: 19284, Start Num: 32

Candidate Starts for Finalfrontier\_23:

(Start: 32 @18538 has 31 MA's), (38, 18580), (54, 18832), (56, 18856), (60, 18955), (63, 19012), (67, 19045), (68, 19054), (69, 19057), (87, 19183), (94, 19246),

Gene: FireCastle\_27 Start: 20765, Stop: 21634, Start Num: 28

Candidate Starts for FireCastle\_27:

(15, 20663), (17, 20684), (19, 20696), (23, 20723), (Start: 28 @20765 has 16 MA's), (31, 20810), (35, 20843), (50, 21014), (52, 21065), (59, 21200), (61, 21269), (71, 21335), (77, 21392), (79, 21401), (88, 21482), (93, 21515), (101, 21557),

Gene: Fulton\_23 Start: 16741, Stop: 17616, Start Num: 27

Candidate Starts for Fulton\_23:

(Start: 27 @16741 has 55 MA's), (31, 16786), (36, 16828), (38, 16837), (39, 16843), (49, 16963), (50, 16996), (62, 17257), (76, 17353), (87, 17434),

Gene: FuzzBuster\_49 Start: 30502, Stop: 31455, Start Num: 28

Candidate Starts for FuzzBuster\_49:

(Start: 28 @30502 has 16 MA's), (31, 30547), (34, 30577), (52, 30808), (57, 30901), (59, 30946), (62, 31021), (66, 31036), (74, 31096), (91, 31219), (92, 31240), (105, 31354),

Gene: Ganandorf\_42 Start: 30032, Stop: 30937, Start Num: 27

Candidate Starts for Ganandorf\_42:

(Start: 27 @30032 has 55 MA's), (31, 30077), (33, 30095), (38, 30128), (47, 30227), (49, 30254), (51, 30293), (55, 30389), (57, 30431), (61, 30548), (76, 30650), (80, 30671), (87, 30716), (88, 30734), (91, 30743), (92, 30758), (110, 30884),

Gene: Gingerbug\_26 Start: 19185, Stop: 20060, Start Num: 27

Candidate Starts for Gingerbug\_26:

(Start: 27 @19185 has 55 MA's), (31, 19230), (38, 19281), (41, 19293), (52, 19491), (54, 19533), (57, 19584), (58, 19587), (61, 19701), (69, 19743), (73, 19776), (76, 19803), (87, 19869), (90, 19890), (107, 20016),

Gene: Glorp\_44 Start: 30033, Stop: 30938, Start Num: 27

Candidate Starts for Glorp\_44:

(Start: 27 @30033 has 55 MA's), (31, 30078), (33, 30096), (38, 30129), (47, 30228), (49, 30255), (51, 30294), (53, 30372), (57, 30432), (61, 30549), (65, 30564), (76, 30651), (80, 30672), (82, 30681), (87, 30717), (91, 30744), (92, 30759), (104, 30828), (110, 30885),

Gene: Goodman\_28 Start: 20607, Stop: 21482, Start Num: 28

Candidate Starts for Goodman\_28:

(Start: 28 @20607 has 16 MA's), (29, 20619), (31, 20652), (61, 21117), (69, 21159), (73, 21192), (76, 21219), (87, 21285), (90, 21306), (92, 21327), (103, 21390),

Gene: Greenlvy\_23 Start: 17333, Stop: 18202, Start Num: 27

Candidate Starts for Greenlvy\_23:

(Start: 27 @17333 has 55 MA's), (31, 17378), (39, 17435), (49, 17555), (62, 17849), (76, 17945), (87, 18026), (88, 18044),

Gene: Guzman\_30 Start: 18892, Stop: 19785, Start Num: 27

Candidate Starts for Guzman\_30:

(Start: 27 @18892 has 55 MA's), (31, 18940), (43, 19057), (44, 19060), (45, 19075), (53, 19243), (62, 19423), (76, 19522), (82, 19552), (89, 19606), (92, 19627), (108, 19753),

Gene: Hasitha\_23 Start: 16759, Stop: 17628, Start Num: 27

Candidate Starts for Hasitha\_23:

(Start: 27 @16759 has 55 MA's), (31, 16804), (39, 16861), (49, 16981), (50, 17014), (62, 17275), (76, 17371), (87, 17452), (88, 17470),

Gene: HerculesXL\_23 Start: 16850, Stop: 17716, Start Num: 27

Candidate Starts for HerculesXL\_23:

(Start: 27 @16850 has 55 MA's), (31, 16904), (38, 16955), (40, 16964), (45, 17039), (49, 17081), (50, 17114), (60, 17324), (62, 17375), (69, 17411), (73, 17444), (76, 17471), (92, 17591),

Gene: Hermeonysus\_42 Start: 29899, Stop: 30804, Start Num: 27

Candidate Starts for Hermeonysus\_42:

(Start: 27 @29899 has 55 MA's), (31, 29944), (33, 29962), (38, 29995), (47, 30094), (49, 30121), (51, 30160), (55, 30256), (57, 30298), (61, 30415), (76, 30517), (80, 30538), (87, 30583), (88, 30601), (91, 30610), (92, 30625),

Gene: Honeyfin\_44 Start: 30220, Stop: 31125, Start Num: 27

Candidate Starts for Honeyfin\_44:

(21, 30193), (Start: 27 @30220 has 55 MA's), (31, 30265), (33, 30283), (38, 30316), (47, 30415), (49, 30442), (51, 30481), (53, 30559), (57, 30619), (61, 30736), (65, 30751), (76, 30838), (80, 30859), (82, 30868), (87, 30904), (88, 30922), (91, 30931), (92, 30946), (104, 31015), (110, 31072),

Gene: Htur\_27 Start: 20662, Stop: 21537, Start Num: 28

Candidate Starts for Htur\_27:

(Start: 28 @20662 has 16 MA's), (31, 20707), (40, 20767), (62, 21178), (69, 21214), (76, 21274), (88, 21373),

Gene: IndiRoo\_28 Start: 19199, Stop: 20071, Start Num: 28

Candidate Starts for IndiRoo\_28:

(17, 19103), (23, 19142), (Start: 28 @19199 has 16 MA's), (29, 19211), (31, 19244), (38, 19295), (42, 19340), (47, 19388), (52, 19499), (54, 19538), (59, 19634), (61, 19703), (71, 19769), (77, 19826), (84, 19862), (93, 19949),

Gene: IndyLu\_22 Start: 17993, Stop: 18739, Start Num: 32

Candidate Starts for IndyLu\_22:

(Start: 32 @17993 has 31 MA's), (38, 18035), (54, 18287), (56, 18311), (60, 18410), (63, 18467), (67, 18500), (68, 18509), (69, 18512), (87, 18638), (94, 18701),

Gene: Jabb\_22 Start: 18064, Stop: 18816, Start Num: 32

Candidate Starts for Jabb\_22:

(30, 18028), (Start: 32 @18064 has 31 MA's), (38, 18106), (54, 18358), (56, 18382), (63, 18541), (67, 18574), (69, 18586), (95, 18781), (98, 18799),

Gene: Jakelyne\_31 Start: 18699, Stop: 19592, Start Num: 27

Candidate Starts for Jakelyne\_31:

(Start: 27 @18699 has 55 MA's), (31, 18747), (43, 18864), (44, 18867), (45, 18882), (53, 19050), (62, 19230), (76, 19329), (82, 19359), (89, 19413), (92, 19434), (108, 19560),

Gene: Jefe\_43 Start: 29957, Stop: 30862, Start Num: 27

Candidate Starts for Jefe\_43:

(Start: 27 @29957 has 55 MA's), (31, 30002), (33, 30020), (38, 30053), (47, 30152), (49, 30179), (51, 30218), (53, 30296), (57, 30356), (61, 30473), (65, 30488), (76, 30575), (80, 30596), (82, 30605), (87, 30641), (88, 30659), (91, 30668), (92, 30683), (104, 30752), (110, 30809),

Gene: Jera\_28 Start: 19719, Stop: 20600, Start Num: 28

Candidate Starts for Jera\_28:

(Start: 28 @19719 has 16 MA's), (31, 19764), (40, 19824), (47, 19908), (61, 20232), (63, 20238), (69, 20274), (73, 20307), (75, 20322), (87, 20400), (90, 20421), (91, 20427), (92, 20442), (100, 20481), (103, 20505), (109, 20556),

Gene: Johann\_28 Start: 20607, Stop: 21482, Start Num: 28

Candidate Starts for Johann\_28:

(Start: 28 @20607 has 16 MA's), (29, 20619), (31, 20652), (61, 21117), (69, 21159), (73, 21192), (76, 21219), (87, 21285), (90, 21306), (92, 21327), (103, 21390),

Gene: Johnathan\_22 Start: 18048, Stop: 18797, Start Num: 32

Candidate Starts for Johnathan\_22:

(7, 17724), (14, 17874), (Start: 32 @18048 has 31 MA's), (38, 18090), (46, 18174), (54, 18342), (56, 18366), (63, 18522), (67, 18555), (68, 18564), (85, 18681), (87, 18693), (99, 18783), (100, 18792),

Gene: Jollipop\_43 Start: 30296, Stop: 31201, Start Num: 27

Candidate Starts for Jollipop\_43:

(Start: 27 @30296 has 55 MA's), (31, 30341), (33, 30359), (38, 30392), (47, 30491), (49, 30518), (51, 30557), (55, 30653), (57, 30695), (61, 30812), (76, 30914), (80, 30935), (87, 30980), (88, 30998), (91, 31007), (92, 31022), (110, 31148),

Gene: Jovita\_22 Start: 18129, Stop: 18881, Start Num: 32

Candidate Starts for Jovita\_22:

(30, 18093), (Start: 32 @18129 has 31 MA's), (38, 18171), (54, 18423), (56, 18447), (63, 18606), (67, 18639), (69, 18651), (95, 18846), (98, 18864),

Gene: KaiHaiDragon\_43 Start: 29893, Stop: 30798, Start Num: 27

Candidate Starts for KaiHaiDragon\_43:

(Start: 27 @29893 has 55 MA's), (31, 29938), (33, 29956), (38, 29989), (47, 30088), (49, 30115), (51, 30154), (55, 30250), (57, 30292), (61, 30409), (76, 30511), (80, 30532), (87, 30577), (88, 30595), (91, 30604), (92, 30619), (110, 30745),

Gene: Kate33\_22 Start: 17995, Stop: 18741, Start Num: 32

Candidate Starts for Kate33\_22:

(Start: 32 @17995 has 31 MA's), (38, 18037), (54, 18289), (56, 18313), (60, 18412), (63, 18469), (67, 18502), (68, 18511), (69, 18514), (87, 18640), (94, 18703),

Gene: Kenzers\_22 Start: 18012, Stop: 18767, Start Num: 32

Candidate Starts for Kenzers\_22:

(7, 17688), (22, 17898), (30, 17976), (Start: 32 @18012 has 31 MA's), (38, 18054), (46, 18138), (54, 18306), (56, 18330), (63, 18489), (67, 18522), (68, 18531), (85, 18648), (94, 18723), (98, 18750),

Gene: Kowalski\_42 Start: 30006, Stop: 30911, Start Num: 27

Candidate Starts for Kowalski\_42:

(Start: 27 @30006 has 55 MA's), (31, 30051), (33, 30069), (38, 30102), (47, 30201), (49, 30228), (51, 30267), (55, 30363), (57, 30405), (61, 30522), (76, 30624), (80, 30645), (87, 30690), (88, 30708), (91, 30717), (92, 30732), (110, 30858),

Gene: Lahqtemish\_22 Start: 18041, Stop: 18790, Start Num: 32

Candidate Starts for Lahqtemish\_22:

(Start: 32 @18041 has 31 MA's), (38, 18083), (46, 18167), (54, 18335), (56, 18359), (63, 18515), (67, 18548), (68, 18557), (69, 18560), (85, 18674), (87, 18686), (99, 18776), (100, 18785),

Gene: Lesiram\_29 Start: 19024, Stop: 19914, Start Num: 27

Candidate Starts for Lesiram\_29:

(12, 18922), (18, 18964), (26, 19021), (Start: 27 @19024 has 55 MA's), (31, 19069), (38, 19120), (41, 19132), (51, 19285), (52, 19330), (54, 19372), (57, 19423), (58, 19426), (62, 19546), (70, 19588), (73, 19615), (76, 19642), (87, 19708), (88, 19726), (90, 19729), (92, 19750), (110, 19876),

Gene: Librie\_23 Start: 16759, Stop: 17634, Start Num: 27

Candidate Starts for Librie\_23:

(Start: 27 @16759 has 55 MA's), (31, 16804), (36, 16846), (38, 16855), (39, 16861), (49, 16981), (50, 17014), (62, 17275), (76, 17371), (87, 17452),

Gene: LilTerminator\_24 Start: 16765, Stop: 17634, Start Num: 27

Candidate Starts for LilTerminator\_24:

(Start: 27 @16765 has 55 MA's), (31, 16810), (39, 16867), (49, 16987), (50, 17020), (62, 17281), (76, 17377), (87, 17458), (88, 17476),

Gene: LimaBean\_22 Start: 18044, Stop: 18793, Start Num: 32

Candidate Starts for LimaBean\_22:

(7, 17720), (14, 17870), (30, 18008), (Start: 32 @18044 has 31 MA's), (38, 18086), (46, 18170), (54, 18338), (56, 18362), (63, 18518), (67, 18551), (68, 18560), (85, 18677), (87, 18689), (99, 18779), (100, 18788),

Gene: Linayshia\_27 Start: 20654, Stop: 21529, Start Num: 28

Candidate Starts for Linayshia\_27:

(Start: 28 @20654 has 16 MA's), (31, 20699), (40, 20759), (62, 21170), (69, 21206), (76, 21266), (88, 21365),

Gene: LittleFortune\_44 Start: 30262, Stop: 31167, Start Num: 27

Candidate Starts for LittleFortune\_44:

(Start: 27 @30262 has 55 MA's), (31, 30307), (33, 30325), (38, 30358), (47, 30457), (49, 30484), (51, 30523), (55, 30619), (57, 30661), (61, 30778), (76, 30880), (80, 30901), (87, 30946), (88, 30964), (91, 30973), (92, 30988), (110, 31114),

Gene: Losacky\_31 Start: 18763, Stop: 19656, Start Num: 27

Candidate Starts for Losacky\_31:

(Start: 27 @18763 has 55 MA's), (31, 18811), (43, 18928), (44, 18931), (45, 18946), (53, 19114), (62, 19294), (76, 19393), (82, 19423), (89, 19477), (92, 19498), (108, 19624),

Gene: Lynlen\_22 Start: 18012, Stop: 18767, Start Num: 32

Candidate Starts for Lynlen\_22:

(7, 17688), (22, 17898), (30, 17976), (Start: 32 @18012 has 31 MA's), (38, 18054), (46, 18138), (54, 18306), (56, 18330), (63, 18489), (67, 18522), (68, 18531), (85, 18648), (94, 18723), (98, 18750),

Gene: MenE\_29 Start: 18751, Stop: 19644, Start Num: 27

Candidate Starts for MenE\_29:

(20, 18718), (Start: 27 @18751 has 55 MA's), (31, 18799), (43, 18916), (44, 18919), (45, 18934), (53, 19102), (62, 19282), (76, 19381), (82, 19411), (89, 19465), (92, 19486), (108, 19612),

Gene: Milani\_28 Start: 19814, Stop: 20680, Start Num: 28

Candidate Starts for Milani\_28:

(17, 19733), (23, 19772), (Start: 28 @19814 has 16 MA's), (31, 19859), (47, 20003), (50, 20063), (52, 20114), (59, 20249), (61, 20315), (77, 20435), (78, 20441), (83, 20465), (84, 20471), (93, 20558), (94, 20564),

Gene: MsUbiquitous\_22 Start: 18064, Stop: 18816, Start Num: 32

Candidate Starts for MsUbiquitous\_22:

(30, 18028), (Start: 32 @18064 has 31 MA's), (38, 18106), (54, 18358), (56, 18382), (63, 18541), (67, 18574), (69, 18586), (95, 18781), (98, 18799),

Gene: Nicky22\_23 Start: 18472, Stop: 19227, Start Num: 32

Candidate Starts for Nicky22\_23:

(7, 18148), (30, 18436), (Start: 32 @18472 has 31 MA's), (38, 18514), (54, 18766), (56, 18790), (63, 18949), (64, 18955), (67, 18982), (68, 18991), (69, 18994), (98, 19210),

Gene: NoodlelyBoi\_43 Start: 30319, Stop: 31206, Start Num: 27

Candidate Starts for NoodlelyBoi\_43:

(Start: 27 @30319 has 55 MA's), (31, 30364), (33, 30382), (38, 30415), (48, 30529), (50, 30574), (51, 30580), (55, 30676), (57, 30718), (61, 30829), (76, 30931), (80, 30952), (82, 30961), (87, 30997), (88, 31015), (91, 31024), (92, 31039),

Gene: Olympi\_28 Start: 20606, Stop: 21469, Start Num: 29

Candidate Starts for Olympi\_28:

(Start: 28 @20594 has 16 MA's), (29, 20606), (31, 20639), (61, 21104), (69, 21146), (73, 21179), (76, 21206), (87, 21272), (90, 21293), (92, 21314), (103, 21377),

Gene: Onika\_42 Start: 29981, Stop: 30886, Start Num: 27

Candidate Starts for Onika\_42:

(Start: 27 @29981 has 55 MA's), (31, 30026), (33, 30044), (38, 30077), (47, 30176), (48, 30191), (49, 30203), (55, 30338), (57, 30380), (61, 30497), (76, 30599), (80, 30620), (87, 30665), (88, 30683), (91, 30692), (92, 30707), (110, 30833),

Gene: Paschalis\_42 Start: 29988, Stop: 30893, Start Num: 27

Candidate Starts for Paschalis\_42:

(Start: 27 @29988 has 55 MA's), (31, 30033), (33, 30051), (38, 30084), (47, 30183), (49, 30210), (51, 30249), (54, 30336), (55, 30345), (57, 30387), (61, 30504), (76, 30606), (80, 30627), (87, 30672), (88, 30690), (91, 30699), (92, 30714), (104, 30783), (106, 30804), (110, 30840), (111, 30849),

Gene: PastaFagioli\_22 Start: 18029, Stop: 18781, Start Num: 32

Candidate Starts for PastaFagioli\_22:

(Start: 32 @18029 has 31 MA's), (38, 18071), (54, 18323), (56, 18347), (63, 18503), (67, 18536), (68, 18545), (69, 18548), (85, 18662), (87, 18674), (94, 18737), (98, 18764),

Gene: PermaG\_28 Start: 20672, Stop: 21523, Start Num: 28

Candidate Starts for PermaG\_28:

(23, 20633), (Start: 28 @20672 has 16 MA's), (31, 20717), (62, 21185), (69, 21221), (76, 21281), (90, 21368),

Gene: PhedwardCullen\_41 Start: 29739, Stop: 30644, Start Num: 27

Candidate Starts for PhedwardCullen\_41:

(Start: 27 @29739 has 55 MA's), (31, 29784), (33, 29802), (38, 29835), (47, 29934), (49, 29961), (51, 30000), (55, 30096), (57, 30138), (61, 30255), (76, 30357), (80, 30378), (87, 30423), (88, 30441), (91, 30450), (92, 30465), (110, 30591),

Gene: PhigPhack\_23 Start: 18021, Stop: 18770, Start Num: 32

Candidate Starts for PhigPhack\_23:

(7, 17697), (Start: 32 @18021 has 31 MA's), (37, 18057), (38, 18063), (46, 18147), (54, 18315), (56, 18339), (63, 18495), (67, 18528), (68, 18537), (69, 18540), (85, 18654), (87, 18666), (99, 18756), (100, 18765),

Gene: PhillyJawn\_29 Start: 18483, Stop: 19376, Start Num: 27

Candidate Starts for PhillyJawn\_29:

(Start: 27 @18483 has 55 MA's), (31, 18531), (43, 18648), (44, 18651), (45, 18666), (53, 18834), (62, 19014), (76, 19113), (82, 19143), (89, 19197), (92, 19218), (108, 19344),

Gene: Phingu\_31 Start: 18696, Stop: 19577, Start Num: 26

Candidate Starts for Phingu\_31:

(26, 18696), (31, 18744), (43, 18861), (44, 18864), (45, 18879), (47, 18894), (62, 19224), (65, 19236), (69, 19260), (76, 19320), (86, 19377), (108, 19545),

Gene: Phisb\_22 Start: 18038, Stop: 18793, Start Num: 32

Candidate Starts for Phisb\_22:

(30, 18002), (Start: 32 @18038 has 31 MA's), (38, 18080), (46, 18164), (54, 18332), (56, 18356), (63, 18515), (67, 18548), (68, 18557), (85, 18674), (98, 18776),

Gene: Phonegingi\_28 Start: 18526, Stop: 19389, Start Num: 27

Candidate Starts for Phonegingi\_28:

(24, 18517), (Start: 27 @18526 has 55 MA's), (31, 18574), (43, 18691), (44, 18694), (45, 18709), (53, 18871), (62, 19051), (65, 19063), (69, 19087), (76, 19147), (81, 19174), (86, 19204),

Gene: Phorgeous\_42 Start: 29851, Stop: 30756, Start Num: 27

Candidate Starts for Phorgeous\_42:

(Start: 27 @29851 has 55 MA's), (31, 29896), (33, 29914), (38, 29947), (47, 30046), (49, 30073), (51, 30112), (55, 30208), (57, 30250), (61, 30367), (76, 30469), (80, 30490), (87, 30535), (88, 30553), (91, 30562), (92, 30577), (110, 30703),

Gene: Phrancesco\_43 Start: 30141, Stop: 31046, Start Num: 27

Candidate Starts for Phrancesco\_43:

(Start: 27 @30141 has 55 MA's), (31, 30186), (33, 30204), (38, 30237), (47, 30336), (49, 30363), (51, 30402), (55, 30498), (57, 30540), (61, 30657), (76, 30759), (80, 30780), (87, 30825), (88, 30843), (91, 30852), (92, 30867), (110, 30993),

Gene: Pickles13\_28 Start: 18911, Stop: 19798, Start Num: 27

Candidate Starts for Pickles13\_28:

(8, 18692), (9, 18767), (Start: 27 @18911 has 55 MA's), (31, 18959), (43, 19076), (45, 19094), (47, 19109), (53, 19256), (60, 19385), (62, 19436), (65, 19448), (73, 19508), (76, 19535), (89, 19619), (92,



19640), (102, 19712), (108, 19766),

Gene: PierreOrion\_43 Start: 30155, Stop: 31060, Start Num: 27

Candidate Starts for PierreOrion\_43:

(Start: 27 @30155 has 55 MA's), (31, 30200), (33, 30218), (47, 30350), (49, 30377), (51, 30416), (53, 30494), (55, 30512), (57, 30554), (61, 30671), (76, 30773), (80, 30794), (87, 30839), (88, 30857), (91, 30866), (92, 30881), (104, 30950), (110, 31007),

Gene: PiperSansNom\_43 Start: 30295, Stop: 31200, Start Num: 27

Candidate Starts for PiperSansNom\_43:

(Start: 27 @30295 has 55 MA's), (31, 30340), (33, 30358), (38, 30391), (47, 30490), (49, 30517), (51, 30556), (55, 30652), (57, 30694), (61, 30811), (76, 30913), (80, 30934), (87, 30979), (88, 30997), (91, 31006), (92, 31021), (110, 31147),

Gene: Piperis\_43 Start: 29974, Stop: 30879, Start Num: 27

Candidate Starts for Piperis\_43:

(Start: 27 @29974 has 55 MA's), (31, 30019), (33, 30037), (38, 30070), (47, 30169), (49, 30196), (51, 30235), (53, 30313), (57, 30373), (61, 30490), (65, 30505), (76, 30592), (80, 30613), (82, 30622), (87, 30658), (88, 30676), (91, 30685), (92, 30700), (104, 30769), (110, 30826),

Gene: Pulchra\_44 Start: 30371, Stop: 31276, Start Num: 27

Candidate Starts for Pulchra\_44:

(21, 30344), (Start: 27 @30371 has 55 MA's), (31, 30416), (33, 30434), (38, 30467), (47, 30566), (49, 30593), (51, 30632), (55, 30728), (57, 30770), (61, 30887), (76, 30989), (80, 31010), (82, 31019), (87, 31055), (88, 31073), (91, 31082), (92, 31097), (110, 31223),

Gene: QMacho\_23 Start: 18508, Stop: 19260, Start Num: 32

Candidate Starts for QMacho\_23:

(30, 18472), (Start: 32 @18508 has 31 MA's), (38, 18550), (54, 18802), (56, 18826), (63, 18985), (67, 19018), (69, 19030), (95, 19225), (98, 19243),

Gene: QuadZero\_23 Start: 16769, Stop: 17638, Start Num: 27

Candidate Starts for QuadZero\_23:

(Start: 27 @16769 has 55 MA's), (31, 16814), (39, 16871), (49, 16991), (50, 17024), (62, 17285), (76, 17381), (87, 17462), (88, 17480),

Gene: Quhwah\_46 Start: 30603, Stop: 31508, Start Num: 27

Candidate Starts for Quhwah\_46:

(Start: 27 @30603 has 55 MA's), (31, 30648), (33, 30666), (38, 30699), (47, 30798), (49, 30825), (51, 30864), (55, 30960), (57, 31002), (61, 31119), (76, 31221), (80, 31242), (87, 31287), (91, 31314), (92, 31329), (110, 31455),

Gene: Ramiel05\_42 Start: 30006, Stop: 30911, Start Num: 27

Candidate Starts for Ramiel05\_42:

(Start: 27 @30006 has 55 MA's), (31, 30051), (33, 30069), (38, 30102), (47, 30201), (49, 30228), (51, 30267), (55, 30363), (57, 30405), (61, 30522), (76, 30624), (80, 30645), (87, 30690), (88, 30708), (91, 30717), (92, 30732), (110, 30858),

Gene: Rasovi\_27 Start: 20662, Stop: 21537, Start Num: 28

Candidate Starts for Rasovi\_27:

(Start: 28 @20662 has 16 MA's), (31, 20707), (40, 20767), (62, 21178), (69, 21214), (76, 21274), (88, 21373),

Gene: SBlackberry\_27 Start: 20472, Stop: 21347, Start Num: 28

Candidate Starts for SBlackberry\_27:

(Start: 28 @20472 has 16 MA's), (29, 20484), (31, 20517), (38, 20568), (61, 20982), (69, 21024), (73, 21057), (76, 21084), (87, 21150), (90, 21171), (92, 21192), (103, 21255),

Gene: SansAfet\_22 Start: 17955, Stop: 18704, Start Num: 32

Candidate Starts for SansAfet\_22:

(7, 17631), (Start: 32 @17955 has 31 MA's), (37, 17991), (38, 17997), (46, 18081), (54, 18249), (56, 18273), (63, 18429), (67, 18462), (68, 18471), (69, 18474), (85, 18588), (87, 18600), (99, 18690), (100, 18699),

Gene: SarBear\_22 Start: 18006, Stop: 18758, Start Num: 32

Candidate Starts for SarBear\_22:

(30, 17970), (Start: 32 @18006 has 31 MA's), (38, 18048), (54, 18300), (56, 18324), (63, 18483), (67, 18516), (69, 18528), (95, 18723), (98, 18741),

Gene: Savannah\_42 Start: 30033, Stop: 30938, Start Num: 27

Candidate Starts for Savannah\_42:

(Start: 27 @30033 has 55 MA's), (31, 30078), (33, 30096), (38, 30129), (47, 30228), (49, 30255), (51, 30294), (55, 30390), (57, 30432), (61, 30549), (76, 30651), (80, 30672), (87, 30717), (88, 30735), (91, 30744), (92, 30759), (110, 30885),

Gene: Schimmels22\_23 Start: 17213, Stop: 18079, Start Num: 27

Candidate Starts for Schimmels22\_23:

(Start: 27 @17213 has 55 MA's), (31, 17267), (38, 17318), (40, 17327), (45, 17402), (49, 17444), (50, 17477), (62, 17738), (69, 17774), (73, 17807), (76, 17834), (92, 17954),

Gene: Scissor2024\_23 Start: 16849, Stop: 17715, Start Num: 27

Candidate Starts for Scissor2024\_23:

(Start: 27 @16849 has 55 MA's), (31, 16903), (40, 16963), (45, 17038), (49, 17080), (62, 17374), (69, 17410), (73, 17443), (76, 17470), (92, 17590),

Gene: Scumberland\_44 Start: 30228, Stop: 31133, Start Num: 27

Candidate Starts for Scumberland\_44:

(Start: 27 @30228 has 55 MA's), (31, 30273), (33, 30291), (38, 30324), (47, 30423), (49, 30450), (51, 30489), (55, 30585), (57, 30627), (61, 30744), (76, 30846), (80, 30867), (87, 30912), (88, 30930), (91, 30939), (92, 30954),

Gene: Selwyn23\_44 Start: 30205, Stop: 31110, Start Num: 27

Candidate Starts for Selwyn23\_44:

(Start: 27 @30205 has 55 MA's), (31, 30250), (33, 30268), (38, 30301), (47, 30400), (49, 30427), (51, 30466), (53, 30544), (57, 30604), (61, 30721), (65, 30736), (76, 30823), (80, 30844), (82, 30853), (87, 30889), (88, 30907), (91, 30916), (92, 30931), (104, 31000), (110, 31057),

Gene: Shotgun\_42 Start: 29832, Stop: 30737, Start Num: 27

Candidate Starts for Shotgun\_42:

(Start: 27 @29832 has 55 MA's), (31, 29877), (33, 29895), (38, 29928), (47, 30027), (48, 30042), (49, 30054), (51, 30093), (53, 30171), (55, 30189), (57, 30231), (61, 30348), (76, 30450), (80, 30471), (87, 30516), (88, 30534), (91, 30543), (92, 30558), (110, 30684),

Gene: SirFrank\_42 Start: 29874, Stop: 30779, Start Num: 27

Candidate Starts for SirFrank\_42:

(Start: 27 @29874 has 55 MA's), (31, 29919), (33, 29937), (38, 29970), (48, 30084), (50, 30129), (51, 30135), (55, 30231), (57, 30273), (61, 30390), (76, 30492), (80, 30513), (87, 30558), (88, 30576), (91, 30585), (92, 30600), (110, 30726),

Gene: Slay\_22 Start: 18548, Stop: 19300, Start Num: 32

Candidate Starts for Slay\_22:

(30, 18512), (Start: 32 @18548 has 31 MA's), (38, 18590), (54, 18842), (56, 18866), (63, 19025), (67, 19058), (69, 19070), (95, 19265), (98, 19283),

Gene: Softsoap\_21 Start: 17779, Stop: 18528, Start Num: 32

Candidate Starts for Softsoap\_21:

(1, 16222), (2, 17035), (5, 17254), (7, 17455), (Start: 32 @17779 has 31 MA's), (37, 17815), (46, 17905), (54, 18073), (56, 18097), (63, 18253), (67, 18286), (68, 18295), (69, 18298), (85, 18412), (87, 18424), (100, 18523),

Gene: Sucha\_24 Start: 18171, Stop: 19043, Start Num: 28

Candidate Starts for Sucha\_24:

(23, 18129), (Start: 28 @18171 has 16 MA's), (31, 18216), (50, 18420), (52, 18471), (59, 18606), (61, 18675), (77, 18798), (84, 18834), (93, 18921),

Gene: Swervy\_22 Start: 18006, Stop: 18758, Start Num: 32

Candidate Starts for Swervy\_22:

(30, 17970), (Start: 32 @18006 has 31 MA's), (38, 18048), (54, 18300), (56, 18324), (63, 18483), (67, 18516), (69, 18528), (95, 18723), (98, 18741),

Gene: Teng\_30 Start: 19074, Stop: 19958, Start Num: 27

Candidate Starts for Teng\_30:

(18, 19014), (26, 19071), (Start: 27 @19074 has 55 MA's), (31, 19119), (38, 19170), (41, 19182), (51, 19335), (52, 19380), (54, 19422), (57, 19473), (58, 19476), (62, 19596), (70, 19638), (73, 19665), (76, 19692), (87, 19758), (88, 19776), (90, 19779), (92, 19800), (102, 19872), (110, 19926),

Gene: Tinyman4\_23 Start: 16850, Stop: 17716, Start Num: 27

Candidate Starts for Tinyman4\_23:

(Start: 27 @16850 has 55 MA's), (31, 16904), (38, 16955), (40, 16964), (45, 17039), (49, 17081), (50, 17114), (60, 17324), (62, 17375), (69, 17411), (73, 17444), (76, 17471), (92, 17591),

Gene: TukTuk\_22 Start: 18064, Stop: 18816, Start Num: 32

Candidate Starts for TukTuk\_22:

(30, 18028), (Start: 32 @18064 has 31 MA's), (38, 18106), (54, 18358), (56, 18382), (63, 18541), (67, 18574), (69, 18586), (95, 18781), (98, 18799),

Gene: TurboVicky\_27 Start: 20471, Stop: 21352, Start Num: 28

Candidate Starts for TurboVicky\_27:

(Start: 28 @20471 has 16 MA's), (31, 20516), (40, 20576), (47, 20660), (61, 20984), (63, 20990), (69, 21026), (73, 21059), (75, 21074), (87, 21152), (90, 21173), (91, 21179), (92, 21194), (97, 21218), (100, 21233), (103, 21257), (109, 21308),

Gene: Typher\_29 Start: 20600, Stop: 21481, Start Num: 28

Candidate Starts for Typher\_29:

(19, 20534), (Start: 28 @20600 has 16 MA's), (31, 20645), (40, 20705), (47, 20789), (61, 21113), (63, 21119), (69, 21155), (73, 21188), (75, 21203), (87, 21281), (90, 21302), (91, 21308), (92, 21323), (97, 21347), (100, 21362), (103, 21386), (109, 21437),

Gene: Wardwill\_25 Start: 16927, Stop: 17796, Start Num: 27

Candidate Starts for Wardwill\_25:

(Start: 27 @16927 has 55 MA's), (31, 16972), (39, 17029), (49, 17149), (50, 17182), (62, 17443), (76, 17539), (87, 17620), (88, 17638),

Gene: Warren\_29 Start: 18684, Stop: 19574, Start Num: 27

Candidate Starts for Warren\_29:

(24, 18675), (Start: 27 @18684 has 55 MA's), (31, 18732), (43, 18849), (44, 18852), (45, 18867), (53, 19029), (62, 19212), (76, 19311), (89, 19395), (92, 19416), (102, 19488), (108, 19542),

Gene: WestPM\_22 Start: 16694, Stop: 17560, Start Num: 27

Candidate Starts for WestPM\_22:

(Start: 27 @16694 has 55 MA's), (31, 16748), (38, 16799), (40, 16808), (44, 16868), (45, 16883), (49, 16925), (50, 16958), (62, 17219), (69, 17255), (73, 17288), (92, 17435),

Gene: Wrackline\_34 Start: 20389, Stop: 21276, Start Num: 27

Candidate Starts for Wrackline\_34:

(10, 20272), (11, 20284), (Start: 27 @20389 has 55 MA's), (29, 20401), (31, 20434), (38, 20485), (39, 20491), (52, 20695), (58, 20791), (59, 20833), (60, 20854), (62, 20899), (76, 20998), (88, 21082), (92, 21106), (96, 21136),

Gene: Yeti\_43 Start: 30007, Stop: 30912, Start Num: 27

Candidate Starts for Yeti\_43:

(Start: 27 @30007 has 55 MA's), (31, 30052), (33, 30070), (38, 30103), (47, 30202), (49, 30229), (51, 30268), (53, 30346), (57, 30406), (61, 30523), (65, 30538), (76, 30625), (80, 30646), (82, 30655), (87, 30691), (88, 30709), (91, 30718), (92, 30733), (104, 30802), (110, 30859),

Gene: Zanella\_27 Start: 20474, Stop: 21355, Start Num: 28

Candidate Starts for Zanella\_27:

(Start: 28 @20474 has 16 MA's), (31, 20519), (40, 20579), (47, 20663), (61, 20987), (63, 20993), (69, 21029), (73, 21062), (75, 21077), (87, 21155), (90, 21176), (91, 21182), (92, 21197), (97, 21221), (100, 21236), (103, 21260), (109, 21311),

Gene: Zayuliv\_23 Start: 17355, Stop: 18224, Start Num: 27

Candidate Starts for Zayuliv\_23:

(Start: 27 @17355 has 55 MA's), (31, 17400), (35, 17433), (39, 17457), (49, 17577), (50, 17610), (62, 17871), (76, 17967), (87, 18048), (88, 18066),

Gene: Zepp\_24 Start: 16753, Stop: 17622, Start Num: 27

Candidate Starts for Zepp\_24:

(Start: 27 @16753 has 55 MA's), (31, 16798), (39, 16855), (49, 16975), (62, 17269), (76, 17365), (87, 17446), (88, 17464),