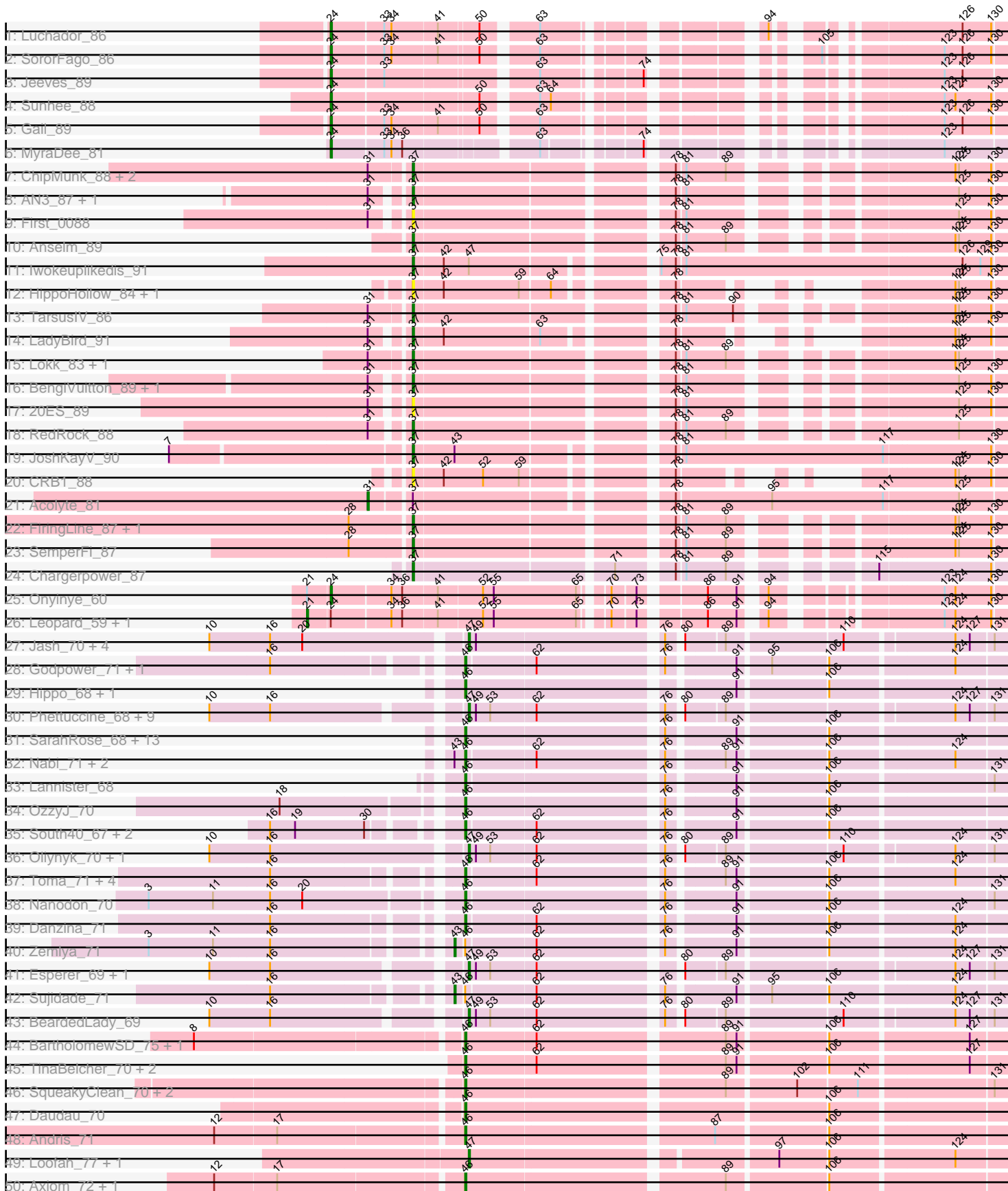


Pham 311280





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 311280 Report

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

Pham number 311280 has 175 members, 14 are drafts.

Phages represented in each track:

- Track 1 : Luchador\_86
- Track 2 : SororFago\_86
- Track 3 : Jeeves\_89
- Track 4 : Sunhee\_88
- Track 5 : Gail\_89
- Track 6 : MyraDee\_81
- Track 7 : ChipMunk\_88, KingCyrus\_86, EvilGenius\_87
- Track 8 : AN3\_87, VA6\_87
- Track 9 : First\_0088
- Track 10 : Anselm\_89
- Track 11 : Iwokeuplikedis\_91
- Track 12 : HippoHollow\_84, LionsBait\_86
- Track 13 : TarsusIV\_86
- Track 14 : LadyBird\_91
- Track 15 : Lokk\_83, BobSwaget\_82
- Track 16 : BengiVuitton\_89, Deloris\_89
- Track 17 : 20ES\_89
- Track 18 : RedRock\_88
- Track 19 : JoshKayV\_90
- Track 20 : CRB1\_88
- Track 21 : Acolyte\_81
- Track 22 : FiringLine\_87, QueenBeesly\_87
- Track 23 : SemperFi\_87
- Track 24 : Chargerpower\_87
- Track 25 : Onyinye\_60
- Track 26 : Leopard\_59, Aikoy\_60
- Track 27 : Jash\_70, Rusticus\_70, Izzy\_70, BryanRecycles\_70, Eddasa\_71
- Track 28 : Godpower\_71, Lika\_70
- Track 29 : Hippo\_68, BarryBee\_71
- Track 30 : Phettuccine\_68, Hydra\_71, Ozzie\_68, Indigo\_67, Legacy\_68, Unstoppable\_68, Bovely\_68, Aaronocolus\_68, Leviticus\_69, SunsetPointe\_68
- Track 31 : SarahRose\_68, TagePhighter\_70, Whatever\_68, Werner\_68, Triste\_69, Emaanora\_71, Asten\_68, TuanPN\_66, Yasdnil\_68, Ejemplo\_66, Dwayne\_68, Chucky\_68, Maneekul\_68, Snorlax\_68
- Track 32 : Nabi\_71, Rana\_71, Lorelei\_70
- Track 33 : Lannister\_68
- Track 34 : OzzyJ\_70

- Track 35 : South40\_67, Katalie\_67, RedBear\_68
- Track 36 : Oliylyk\_70, EnochSoames\_72
- Track 37 : Toma\_71, Celeste\_71, Goby\_71, Brataylor\_72, Dattran\_72
- Track 38 : Nanodon\_70
- Track 39 : Danzina\_71
- Track 40 : Zemlya\_71
- Track 41 : Esperer\_69, Nerdos\_67
- Track 42 : Sujidade\_71
- Track 43 : BeardedLady\_69
- Track 44 : BartholomewSD\_75, Alvy\_75
- Track 45 : TinaBelcher\_70, Bowden\_70, TrvxScott\_69
- Track 46 : SqueakyClean\_70, Janus\_70, Animus\_69
- Track 47 : Daudau\_70
- Track 48 : Andris\_71
- Track 49 : Loofah\_77, Paedore\_74
- Track 50 : Axiom\_72, Triumph\_72
- Track 51 : ELB20\_71
- Track 52 : GirlDinner\_69
- Track 53 : Pablito\_69
- Track 54 : Caelum\_73
- Track 55 : Marav\_72
- Track 56 : Paolo\_74, Zainub\_74
- Track 57 : Tefunt\_69, Nishikigoi\_70, Haizum\_69
- Track 58 : Jevington\_72
- Track 59 : Amethyst\_69
- Track 60 : Thestral\_72
- Track 61 : Diane\_70
- Track 62 : Issmi\_70
- Track 63 : R4\_73
- Track 64 : Hank144\_72
- Track 65 : Superstar\_76
- Track 66 : Puginator\_74
- Track 67 : Omar\_74
- Track 68 : Amela\_71
- Track 69 : Kaine\_72, Provolone\_73, SunkenRoot\_73, Sudan\_72, Pavo\_73, Conan\_73, Alsaber\_72
- Track 70 : Speedwell\_74
- Track 71 : Verabelle\_74, Vanseggelen\_77
- Track 72 : Verse\_72
- Track 73 : ElGato\_73
- Track 74 : Saftant\_70
- Track 75 : ZamZam\_72
- Track 76 : Celery\_76
- Track 77 : Yosif\_73
- Track 78 : Dexers\_70
- Track 79 : phiCAM\_68
- Track 80 : Jhitchelle\_69
- Track 81 : BroPlease\_69, GreenWeasel\_71
- Track 82 : Celia\_74, Urza\_76, Itza\_77
- Track 83 : VieEnRose\_75
- Track 84 : JonJames\_194
- Track 85 : Cardigan\_203
- Track 86 : Yvonnetastic\_195

- Track 87 : Sienna\_41, BiteSize\_41, Terapin\_42, Beyoncage\_41, Djokovic\_41, Madi\_41
- Track 88 : Suzy\_41
- Track 89 : LilyPad\_45
- Track 90 : LittleFella\_50
- Track 91 : Daredevil\_130
- Track 92 : Bantam\_137
- Track 93 : DatBoi\_134
- Track 94 : SpeedDemon\_1400
- Track 95 : Towmatter\_127
- Track 96 : LilJank\_6
- Track 97 : Megabear\_76, D12\_76, PR\_77, Argie\_79, Cepens\_78
- Track 98 : GodPhather\_77, Jeon\_73
- Track 99 : Taptic\_79

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

The start number called the most often in the published annotations is 46, it was called in 59 of the 161 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alvy\_75, Amethyst\_69, Andris\_71, Animus\_69, Asten\_68, Axiom\_72, BarryBee\_71, BartholomewSD\_75, Bowden\_70, Brataylor\_72, Caelum\_73, Celeste\_71, Chucky\_68, Danzina\_71, Daredevil\_130, Dattran\_72, Daudau\_70, Diane\_70, Dwayne\_68, Ejemplo\_66, Emaanora\_71, GirlDinner\_69, Goby\_71, Godpower\_71, Haizum\_69, Hank144\_72, Hippo\_68, Janus\_70, JonJames\_194, Katalie\_67, Lannister\_68, Lika\_70, Lorelei\_70, Maneekul\_68, Nabi\_71, Nanodon\_70, Nishikigoi\_70, OzzyJ\_70, Pablito\_69, Rana\_71, RedBear\_68, SarahRose\_68, Snorlax\_68, South40\_67, SqueakyClean\_70, Superstar\_76, TagePhighter\_70, Tefunt\_69, Thestral\_72, TinaBelcher\_70, Toma\_71, Towmatter\_127, Triste\_69, Triumph\_72, TrvxScott\_69, TuanPN\_66, Werner\_68, Whatever\_68, Yasdnil\_68, Yvonnestic\_195,

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

- Sujidade\_71, Zemlya\_71,

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

- 20ES\_89, AN3\_87, Aaronocolus\_68, Acolyte\_81, Aikoy\_60, Alsaber\_72, Amela\_71, Anselm\_89, Argie\_79, Bantam\_137, BeardedLady\_69, BengiVuitton\_89, Beyoncage\_41, BiteSize\_41, BobSwaget\_82, Bovely\_68, BroPlease\_69, BryanRecycles\_70, CRB1\_88, Cardigan\_203, Celery\_76, Celia\_74, Cepens\_78, Chargerpower\_87, ChipMunk\_88, Conan\_73, D12\_76, DatBoi\_134, Deloris\_89, Dexers\_70, Djokovic\_41, ELB20\_71, Eddasa\_71, ElGato\_73, EnochSoames\_72, Esperer\_69, EvilGenius\_87, FiringLine\_87, First\_0088, Gail\_89, GodPhather\_77, GreenWeasel\_71, HippoHollow\_84, Hydra\_71, Indigo\_67, Issmi\_70, Itza\_77, Iwokeuplikedis\_91, Izzy\_70, Jash\_70, Jeeves\_89, Jeon\_73, Jevington\_72, Jhitchelle\_69, JoshKayV\_90, Kaine\_72, KingCyrus\_86, LadyBird\_91, Legacy\_68, Leopard\_59, Leviticus\_69, LilJank\_6, LilyPad\_45, LionsBait\_86, LittleFella\_50, Lokk\_83, Loofah\_77, Luchador\_86, Madi\_41, Marav\_72, Megabear\_76, MyraDee\_81, Nerdos\_67, Oliynyk\_70, Omar\_74, Onyinye\_60, Ozzie\_68, PR\_77,

Paedore\_74, Paolo\_74, Pavo\_73, Phettuccine\_68, Provolone\_73, Puginator\_74, QueenBeesly\_87, R4\_73, RedRock\_88, Rusticus\_70, Saftant\_70, SemperFi\_87, Sienna\_41, SororFago\_86, SpeedDemon\_1400, Speedwell\_74, Sudan\_72, Sunhee\_88, SunkenRoot\_73, SunsetPointe\_68, Suzy\_41, Taptic\_79, TarsusIV\_86, Terapin\_42, Unstoppable\_68, Urza\_76, VA6\_87, Vanseggelen\_77, Verabelle\_74, Verse\_72, VieEnRose\_75, Yosif\_73, Zainub\_74, ZamZam\_72, phiCAM\_68,

### Summary by start number:

#### Start 21:

- Found in 3 of 175 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 2 of 161
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Aikoy\_60 (AE), Leopard\_59 (AE),

#### Start 24:

- Found in 17 of 175 ( 9.7% ) of genes in pham
- Manual Annotations of this start: 15 of 161
- Called 88.2% of time when present
- Phage (with cluster) where this start called: Argie\_79 (W), Cepens\_78 (W), D12\_76 (W), Gail\_89 (A14), GodPhather\_77 (W), Jeeves\_89 (A14), Jeon\_73 (W), Luchador\_86 (A14), Megabear\_76 (W), MyraDee\_81 (A18), Onyinye\_60 (AE), PR\_77 (W), SororFago\_86 (A14), Sunhee\_88 (A14), Taptic\_79 (W),

#### Start 31:

- Found in 16 of 175 ( 9.1% ) of genes in pham
- Manual Annotations of this start: 1 of 161
- Called 6.2% of time when present
- Phage (with cluster) where this start called: Acolyte\_81 (A2),

#### Start 37:

- Found in 25 of 175 ( 14.3% ) of genes in pham
- Manual Annotations of this start: 19 of 161
- Called 96.0% of time when present
- Phage (with cluster) where this start called: 20ES\_89 (A2), AN3\_87 (A2), Anselm\_89 (A2), BengiVuitton\_89 (A2), BobSwaget\_82 (A2), CRB1\_88 (A2), Chargerpower\_87 (A22), ChipMunk\_88 (A2), Deloris\_89 (A2), EvilGenius\_87 (A2), FiringLine\_87 (A2), First\_0088 (A2), HippoHollow\_84 (A2), Iwokeuplikedis\_91 (A2), JoshKayV\_90 (A2), KingCyrus\_86 (A2), LadyBird\_91 (A2), LionsBait\_86 (A2), Lokk\_83 (A2), QueenBeesly\_87 (A2), RedRock\_88 (A2), SemperFi\_87 (A2), TarsusIV\_86 (A2), VA6\_87 (A2),

#### Start 40:

- Found in 7 of 175 ( 4.0% ) of genes in pham
- Manual Annotations of this start: 7 of 161
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beyoncage\_41 (DG1), BiteSize\_41 (DG1), Djokovic\_41 (DG1), Madi\_41 (DG1), Sienna\_41 (DG1), Suzy\_41 (DG1), Terapin\_42 (DG1),

#### Start 42:

- Found in 6 of 175 ( 3.4% ) of genes in pham
- Manual Annotations of this start: 1 of 161

- Called 16.7% of time when present
- Phage (with cluster) where this start called: LilyPad\_45 (DG1),

#### Start 43:

- Found in 8 of 175 ( 4.6% ) of genes in pham
- Manual Annotations of this start: 2 of 161
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Sujidade\_71 (BD1), Zemlya\_71 (BD1),

#### Start 45:

- Found in 3 of 175 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 3 of 161
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bantam\_137 (DL), DatBoi\_134 (DL), SpeedDemon\_1400 (DL),

#### Start 46:

- Found in 62 of 175 ( 35.4% ) of genes in pham
- Manual Annotations of this start: 59 of 161
- Called 96.8% of time when present
- Phage (with cluster) where this start called: Alvy\_75 (BD2), Amethyst\_69 (BD2), Andris\_71 (BD2), Animus\_69 (BD2), Asten\_68 (BD1), Axiom\_72 (BD2), BarryBee\_71 (BD1), BartholomewSD\_75 (BD2), Bowden\_70 (BD2), Brataylor\_72 (BD1), Caelum\_73 (BD2), Celeste\_71 (BD1), Chucky\_68 (BD1), Danzina\_71 (BD1), Daredevil\_130 (DL), Dattran\_72 (BD1), Daudau\_70 (BD2), Diane\_70 (BD2), Dwayne\_68 (BD1), Ejemplo\_66 (BD1), Emaanora\_71 (BD1), GirlDinner\_69 (BD2), Goby\_71 (BD1), Godpower\_71 (BD1), Haizum\_69 (BD2), Hank144\_72 (BD2), Hippo\_68 (BD1), Janus\_70 (BD2), JonJames\_194 (DD), Katalie\_67 (BD1), Lannister\_68 (BD1), Lika\_70 (BD1), Lorelei\_70 (BD1), Maneekul\_68 (BD1), Nabi\_71 (BD1), Nanodon\_70 (BD1), Nishikigoi\_70 (BD2), OzzyJ\_70 (BD1), Pablito\_69 (BD2), Rana\_71 (BD1), RedBear\_68 (BD1), SarahRose\_68 (BD1), Snorlax\_68 (BD1), South40\_67 (BD1), SqueakyClean\_70 (BD2), Superstar\_76 (BD2), TagePhighter\_70 (BD1), Tefunt\_69 (BD2), Thestral\_72 (BD2), TinaBelcher\_70 (BD2), Toma\_71 (BD1), Towmatter\_127 (DL), Triste\_69 (BD1), Triumph\_72 (BD2), TrvxScott\_69 (BD2), TuanPN\_66 (BD1), Werner\_68 (BD1), Whatever\_68 (BD1), Yasdnil\_68 (BD1), Yvonnestic\_195 (DD),

#### Start 47:

- Found in 61 of 175 ( 34.9% ) of genes in pham
- Manual Annotations of this start: 45 of 161
- Called 83.6% of time when present
- Phage (with cluster) where this start called: Aaronocolus\_68 (BD1), Alsaber\_72 (BD3), BeardedLady\_69 (BD1), Bovely\_68 (BD1), BroPlease\_69 (BD4), BryanRecycles\_70 (BD1), Cardigan\_203 (DD), Conan\_73 (BD3), Dexers\_70 (BD3), ELB20\_71 (BD2), Eddasa\_71 (BD1), ElGato\_73 (BD3), EnochSoames\_72 (BD1), Esperer\_69 (BD1), GreenWeasel\_71 (BD4), Hydra\_71 (BD1), Indigo\_67 (BD1), Issmi\_70 (BD2), Izzy\_70 (BD1), Jash\_70 (BD1), Jevington\_72 (BD2), Jhitchelle\_69 (BD3), Kaine\_72 (BD3), Legacy\_68 (BD1), Leviticus\_69 (BD1), Loofah\_77 (BD2), Marav\_72 (BD2), Nerdos\_67 (BD1), Oliynyk\_70 (BD1), Omar\_74 (BD2), Ozzie\_68 (BD1), Paedore\_74 (BD2), Paolo\_74 (BD2), Pavo\_73 (BD3), Phettuccine\_68 (BD1), Provolone\_73 (BD3), Puginator\_74 (BD2), R4\_73 (BD2), Rusticus\_70 (BD1), Saftant\_70 (BD3), Speedwell\_74 (BD3), Sudan\_72 (BD3), SunkenRoot\_73 (BD3), SunsetPointe\_68 (BD1), Unstoppable\_68 (BD1), Vanseggen\_77 (BD3),

Verabelle\_74 (BD3), Verse\_72 (BD3), Zainub\_74 (BD2), ZamZam\_72 (BD3), phiCAM\_68 (BD3),

Start 50:

- Found in 10 of 175 ( 5.7% ) of genes in pham
- Manual Annotations of this start: 4 of 161
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Celia\_74 (BD6), Itza\_77 (BD6), Urza\_76 (BD6), VieEnRose\_75 (BD6),

Start 51:

- Found in 1 of 175 ( 0.6% ) of genes in pham
- Manual Annotations of this start: 1 of 161
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Yosif\_73 (BD3),

Start 53:

- Found in 23 of 175 ( 13.1% ) of genes in pham
- Manual Annotations of this start: 1 of 161
- Called 8.7% of time when present
- Phage (with cluster) where this start called: Amela\_71 (BD3), Celery\_76 (BD3),

Start 58:

- Found in 7 of 175 ( 4.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 14.3% of time when present
- Phage (with cluster) where this start called: LilJank\_6 (DU2),

Start 63:

- Found in 11 of 175 ( 6.3% ) of genes in pham
- Manual Annotations of this start: 1 of 161
- Called 9.1% of time when present
- Phage (with cluster) where this start called: LittleFella\_50 (DG2),

### **Summary by clusters:**

There are 16 clusters represented in this pham: A14, DL, AE, W, DD, A18, A22, DG2, BD4, A2, BD1, BD6, BD3, BD2, DG1, DU2,

Info for manual annotations of cluster A14:

- Start number 24 was manually annotated 5 times for cluster A14.

Info for manual annotations of cluster A18:

- Start number 24 was manually annotated 1 time for cluster A18.

Info for manual annotations of cluster A2:

- Start number 31 was manually annotated 1 time for cluster A2.
- Start number 37 was manually annotated 18 times for cluster A2.

Info for manual annotations of cluster A22:

- Start number 37 was manually annotated 1 time for cluster A22.

Info for manual annotations of cluster AE:

- Start number 21 was manually annotated 2 times for cluster AE.
- Start number 24 was manually annotated 1 time for cluster AE.

Info for manual annotations of cluster BD1:

- Start number 43 was manually annotated 2 times for cluster BD1.
- Start number 46 was manually annotated 33 times for cluster BD1.
- Start number 47 was manually annotated 19 times for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 46 was manually annotated 22 times for cluster BD2.
- Start number 47 was manually annotated 11 times for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 47 was manually annotated 13 times for cluster BD3.
- Start number 51 was manually annotated 1 time for cluster BD3.
- Start number 53 was manually annotated 1 time for cluster BD3.

Info for manual annotations of cluster BD4:

- Start number 47 was manually annotated 2 times for cluster BD4.

Info for manual annotations of cluster BD6:

- Start number 50 was manually annotated 4 times for cluster BD6.

Info for manual annotations of cluster DD:

- Start number 46 was manually annotated 2 times for cluster DD.

Info for manual annotations of cluster DG1:

- Start number 40 was manually annotated 7 times for cluster DG1.
- Start number 42 was manually annotated 1 time for cluster DG1.

Info for manual annotations of cluster DG2:

- Start number 63 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DL:

- Start number 45 was manually annotated 3 times for cluster DL.
- Start number 46 was manually annotated 2 times for cluster DL.

Info for manual annotations of cluster W:

- Start number 24 was manually annotated 8 times for cluster W.

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

Gene: 20ES\_89 Start: 49404, Stop: 48979, Start Num: 37

Candidate Starts for 20ES\_89:

(Start: 31 @49428 has 1 MA's), (Start: 37 @49404 has 19 MA's), (78, 49209), (81, 49203), (125, 49020), (130, 48993),

Gene: AN3\_87 Start: 47668, Stop: 47243, Start Num: 37

Candidate Starts for AN3\_87:

(Start: 31 @47692 has 1 MA's), (Start: 37 @47668 has 19 MA's), (78, 47473), (81, 47467), (125, 47284), (130, 47257),

Gene: Aaronocolus\_68 Start: 46268, Stop: 45861, Start Num: 47

Candidate Starts for Aaronocolus\_68:

(10, 46460), (16, 46409), (Start: 47 @46268 has 45 MA's), (49, 46262), (Start: 53 @46250 has 1 MA's), (62, 46214), (76, 46118), (80, 46109), (89, 46079), (124, 45905), (127, 45893), (131, 45875),

Gene: Acolyte\_81 Start: 48464, Stop: 47973, Start Num: 31

Candidate Starts for Acolyte\_81:

(Start: 31 @48464 has 1 MA's), (Start: 37 @48434 has 19 MA's), (78, 48245), (95, 48167), (117, 48074), (125, 48014),

Gene: Aikoy\_60 Start: 43844, Stop: 44341, Start Num: 21

Candidate Starts for Aikoy\_60:

(Start: 21 @43844 has 2 MA's), (Start: 24 @43862 has 15 MA's), (34, 43910), (36, 43919), (41, 43946), (52, 43982), (55, 43991), (65, 44060), (70, 44075), (73, 44093), (86, 44138), (91, 44162), (94, 44174), (123, 44288), (124, 44297), (130, 44327),

Gene: Alsaber\_72 Start: 46335, Stop: 45925, Start Num: 47

Candidate Starts for Alsaber\_72:

(Start: 47 @46335 has 45 MA's), (76, 46188), (106, 46068), (124, 45969), (127, 45957), (131, 45939),

Gene: Alvy\_75 Start: 47707, Stop: 47282, Start Num: 46

Candidate Starts for Alvy\_75:

(8, 47917), (Start: 46 @47707 has 59 MA's), (62, 47650), (89, 47503), (91, 47494), (106, 47425), (127, 47314),

Gene: Amela\_71 Start: 46935, Stop: 46573, Start Num: 53

Candidate Starts for Amela\_71:

(Start: 53 @46935 has 1 MA's), (91, 46782), (124, 46617), (127, 46605),

Gene: Amethyst\_69 Start: 44727, Stop: 44302, Start Num: 46

Candidate Starts for Amethyst\_69:

(26, 44811), (Start: 46 @44727 has 59 MA's), (76, 44574), (106, 44445), (114, 44406), (126, 44340),

Gene: Andris\_71 Start: 45608, Stop: 45183, Start Num: 46

Candidate Starts for Andris\_71:

(12, 45806), (17, 45755), (Start: 46 @45608 has 59 MA's), (87, 45413), (106, 45326),

Gene: Animus\_69 Start: 46259, Stop: 45834, Start Num: 46

Candidate Starts for Animus\_69:

(Start: 46 @46259 has 59 MA's), (89, 46055), (102, 46001), (111, 45953), (131, 45848),

Gene: Anselm\_89 Start: 49507, Stop: 49082, Start Num: 37

Candidate Starts for Anselm\_89:

(Start: 37 @49507 has 19 MA's), (78, 49312), (81, 49306), (89, 49273), (124, 49126), (125, 49123), (130, 49096),

Gene: Argie\_79 Start: 55898, Stop: 56383, Start Num: 24

Candidate Starts for Argie\_79:

(Start: 24 @55898 has 15 MA's), (32, 55934), (33, 55943), (36, 55958), (Start: 47 @56009 has 45 MA's), (59, 56039), (61, 56051), (65, 56087), (74, 56135), (127, 56351), (130, 56369), (132, 56372),

Gene: Asten\_68 Start: 48266, Stop: 47850, Start Num: 46  
Candidate Starts for Asten\_68:  
(Start: 46 @48266 has 59 MA's), (76, 48113), (91, 48062), (106, 47993),

Gene: Axiom\_72 Start: 46358, Stop: 45933, Start Num: 46  
Candidate Starts for Axiom\_72:  
(12, 46556), (17, 46505), (Start: 46 @46358 has 59 MA's), (89, 46154), (106, 46076),

Gene: Bantam\_137 Start: 80637, Stop: 80239, Start Num: 45  
Candidate Starts for Bantam\_137:  
(Start: 45 @80637 has 3 MA's), (62, 80580), (Start: 63 @80577 has 1 MA's), (99, 80406), (101, 80400),  
(116, 80343), (128, 80265),

Gene: BarryBee\_71 Start: 48239, Stop: 47823, Start Num: 46  
Candidate Starts for BarryBee\_71:  
(Start: 46 @48239 has 59 MA's), (91, 48035), (106, 47966),

Gene: BartholomewSD\_75 Start: 46826, Stop: 46401, Start Num: 46  
Candidate Starts for BartholomewSD\_75:  
(8, 47036), (Start: 46 @46826 has 59 MA's), (62, 46769), (89, 46622), (91, 46613), (106, 46544), (127,  
46433),

Gene: BeardedLady\_69 Start: 46648, Stop: 46241, Start Num: 47  
Candidate Starts for BeardedLady\_69:  
(10, 46840), (16, 46789), (Start: 47 @46648 has 45 MA's), (49, 46642), (Start: 53 @46630 has 1 MA's),  
(62, 46594), (76, 46498), (80, 46489), (89, 46459), (110, 46369), (124, 46285), (127, 46273), (131,  
46255),

Gene: BengiVuitton\_89 Start: 49509, Stop: 49084, Start Num: 37  
Candidate Starts for BengiVuitton\_89:  
(Start: 31 @49533 has 1 MA's), (Start: 37 @49509 has 19 MA's), (78, 49314), (81, 49308), (125,  
49125), (130, 49098),

Gene: Beyoncage\_41 Start: 33094, Stop: 33540, Start Num: 40  
Candidate Starts for Beyoncage\_41:  
(26, 33019), (38, 33091), (Start: 40 @33094 has 7 MA's), (58, 33142), (82, 33292), (89, 33322), (90,  
33328), (93, 33346), (103, 33379), (126, 33502), (132, 33529),

Gene: BiteSize\_41 Start: 33180, Stop: 33626, Start Num: 40  
Candidate Starts for BiteSize\_41:  
(26, 33105), (38, 33177), (Start: 40 @33180 has 7 MA's), (58, 33228), (82, 33378), (89, 33408), (90,  
33414), (93, 33432), (103, 33465), (126, 33588), (132, 33615),

Gene: BobSwaget\_82 Start: 46976, Stop: 46551, Start Num: 37  
Candidate Starts for BobSwaget\_82:  
(Start: 31 @47006 has 1 MA's), (Start: 37 @46976 has 19 MA's), (78, 46781), (81, 46775), (89, 46742),  
(124, 46595), (125, 46592),

Gene: Bovely\_68 Start: 46271, Stop: 45864, Start Num: 47  
Candidate Starts for Bovely\_68:  
(10, 46463), (16, 46412), (Start: 47 @46271 has 45 MA's), (49, 46265), (Start: 53 @46253 has 1 MA's),  
(62, 46217), (76, 46121), (80, 46112), (89, 46082), (124, 45908), (127, 45896), (131, 45878),

Gene: Bowden\_70 Start: 47396, Stop: 46971, Start Num: 46  
Candidate Starts for Bowden\_70:  
(Start: 46 @47396 has 59 MA's), (62, 47339), (89, 47192), (91, 47183), (106, 47114), (127, 47003),

Gene: Brataylor\_72 Start: 47786, Stop: 47373, Start Num: 46  
Candidate Starts for Brataylor\_72:  
(16, 47918), (Start: 46 @47786 has 59 MA's), (62, 47732), (76, 47636), (89, 47594), (91, 47585), (106, 47516), (124, 47417),

Gene: BroPlease\_69 Start: 45409, Stop: 44993, Start Num: 47  
Candidate Starts for BroPlease\_69:  
(Start: 47 @45409 has 45 MA's), (49, 45403), (59, 45367), (76, 45259), (89, 45214), (92, 45196), (106, 45136), (124, 45037), (126, 45031), (127, 45025), (131, 45007),

Gene: BryanRecycles\_70 Start: 46765, Stop: 46358, Start Num: 47  
Candidate Starts for BryanRecycles\_70:  
(10, 46966), (16, 46915), (20, 46888), (Start: 47 @46765 has 45 MA's), (49, 46759), (76, 46615), (80, 46606), (89, 46576), (110, 46486), (124, 46402), (127, 46390), (131, 46372),

Gene: CRB1\_88 Start: 49600, Stop: 49232, Start Num: 37  
Candidate Starts for CRB1\_88:  
(Start: 37 @49600 has 19 MA's), (Start: 42 @49576 has 1 MA's), (52, 49543), (59, 49513), (78, 49411), (124, 49276), (125, 49273), (130, 49246),

Gene: Caelum\_73 Start: 45662, Stop: 45240, Start Num: 46  
Candidate Starts for Caelum\_73:  
(Start: 46 @45662 has 59 MA's), (76, 45512), (91, 45452), (105, 45386), (124, 45284), (127, 45272),

Gene: Cardigan\_203 Start: 96758, Stop: 96372, Start Num: 47  
Candidate Starts for Cardigan\_203:  
(Start: 47 @96758 has 45 MA's), (74, 96644), (91, 96590), (98, 96557), (126, 96410), (132, 96383),

Gene: Celery\_76 Start: 45989, Stop: 45624, Start Num: 53  
Candidate Starts for Celery\_76:  
(Start: 53 @45989 has 1 MA's), (91, 45836), (108, 45758), (124, 45668), (127, 45656),

Gene: Celeste\_71 Start: 47254, Stop: 46841, Start Num: 46  
Candidate Starts for Celeste\_71:  
(16, 47386), (Start: 46 @47254 has 59 MA's), (62, 47200), (76, 47104), (89, 47062), (91, 47053), (106, 46984), (124, 46885),

Gene: Celia\_74 Start: 48305, Stop: 47907, Start Num: 50  
Candidate Starts for Celia\_74:  
(Start: 50 @48305 has 4 MA's), (56, 48290), (57, 48287), (91, 48116), (127, 47939),

Gene: Cepens\_78 Start: 55010, Stop: 55492, Start Num: 24  
Candidate Starts for Cepens\_78:  
(Start: 24 @55010 has 15 MA's), (32, 55046), (33, 55055), (36, 55070), (Start: 47 @55121 has 45 MA's), (59, 55151), (61, 55163), (65, 55199), (74, 55244), (127, 55460), (130, 55478), (132, 55481),

Gene: Chargerpower\_87 Start: 47632, Stop: 47207, Start Num: 37  
Candidate Starts for Chargerpower\_87:

(Start: 37 @47632 has 19 MA's), (71, 47476), (78, 47437), (81, 47431), (89, 47398), (115, 47311), (130, 47221),

Gene: ChipMunk\_88 Start: 50564, Stop: 50139, Start Num: 37

Candidate Starts for ChipMunk\_88:

(Start: 31 @50594 has 1 MA's), (Start: 37 @50564 has 19 MA's), (78, 50369), (81, 50363), (89, 50330), (124, 50183), (125, 50180), (130, 50153),

Gene: Chucky\_68 Start: 48301, Stop: 47885, Start Num: 46

Candidate Starts for Chucky\_68:

(Start: 46 @48301 has 59 MA's), (76, 48148), (91, 48097), (106, 48028),

Gene: Conan\_73 Start: 46587, Stop: 46177, Start Num: 47

Candidate Starts for Conan\_73:

(Start: 47 @46587 has 45 MA's), (76, 46440), (106, 46320), (124, 46221), (127, 46209), (131, 46191),

Gene: D12\_76 Start: 55645, Stop: 56127, Start Num: 24

Candidate Starts for D12\_76:

(Start: 24 @55645 has 15 MA's), (32, 55681), (33, 55690), (36, 55705), (Start: 47 @55756 has 45 MA's), (59, 55786), (61, 55798), (65, 55834), (74, 55879), (127, 56095), (130, 56113), (132, 56116),

Gene: Danzina\_71 Start: 47492, Stop: 47079, Start Num: 46

Candidate Starts for Danzina\_71:

(16, 47624), (Start: 46 @47492 has 59 MA's), (62, 47438), (76, 47342), (91, 47291), (106, 47222), (124, 47123),

Gene: Daredevil\_130 Start: 77242, Stop: 76841, Start Num: 46

Candidate Starts for Daredevil\_130:

(2, 77578), (6, 77500), (13, 77449), (14, 77443), (Start: 46 @77242 has 59 MA's), (68, 77140), (90, 77053), (104, 76984), (113, 76954), (115, 76948), (125, 76882),

Gene: DatBoi\_134 Start: 79614, Stop: 79216, Start Num: 45

Candidate Starts for DatBoi\_134:

(Start: 45 @79614 has 3 MA's), (Start: 63 @79554 has 1 MA's), (99, 79383), (128, 79242),

Gene: Dattran\_72 Start: 47707, Stop: 47294, Start Num: 46

Candidate Starts for Dattran\_72:

(16, 47839), (Start: 46 @47707 has 59 MA's), (62, 47653), (76, 47557), (89, 47515), (91, 47506), (106, 47437), (124, 47338),

Gene: Daudau\_70 Start: 45237, Stop: 44812, Start Num: 46

Candidate Starts for Daudau\_70:

(Start: 46 @45237 has 59 MA's), (106, 44955),

Gene: Deloris\_89 Start: 49202, Stop: 48777, Start Num: 37

Candidate Starts for Deloris\_89:

(Start: 31 @49226 has 1 MA's), (Start: 37 @49202 has 19 MA's), (78, 49007), (81, 49001), (125, 48818), (130, 48791),

Gene: Dexers\_70 Start: 46547, Stop: 46152, Start Num: 47

Candidate Starts for Dexers\_70:

(Start: 47 @46547 has 45 MA's), (49, 46541), (95, 46340), (106, 46295), (124, 46196),

Gene: Diane\_70 Start: 45814, Stop: 45389, Start Num: 46  
Candidate Starts for Diane\_70:  
(Start: 46 @45814 has 59 MA's), (76, 45661), (106, 45532), (114, 45493),

Gene: Djokovic\_41 Start: 33093, Stop: 33539, Start Num: 40  
Candidate Starts for Djokovic\_41:  
(26, 33018), (38, 33090), (Start: 40 @33093 has 7 MA's), (58, 33141), (82, 33291), (89, 33321), (90, 33327), (93, 33345), (103, 33378), (126, 33501), (132, 33528),

Gene: Dwayne\_68 Start: 48289, Stop: 47873, Start Num: 46  
Candidate Starts for Dwayne\_68:  
(Start: 46 @48289 has 59 MA's), (76, 48136), (91, 48085), (106, 48016),

Gene: ELB20\_71 Start: 46105, Stop: 45692, Start Num: 47  
Candidate Starts for ELB20\_71:  
(Start: 47 @46105 has 45 MA's), (92, 45892), (97, 45871), (106, 45832), (124, 45736),

Gene: Eddasa\_71 Start: 47304, Stop: 46897, Start Num: 47  
Candidate Starts for Eddasa\_71:  
(10, 47505), (16, 47454), (20, 47427), (Start: 47 @47304 has 45 MA's), (49, 47298), (76, 47154), (80, 47145), (89, 47115), (110, 47025), (124, 46941), (127, 46929), (131, 46911),

Gene: Ejemplo\_66 Start: 48227, Stop: 47811, Start Num: 46  
Candidate Starts for Ejemplo\_66:  
(Start: 46 @48227 has 59 MA's), (76, 48074), (91, 48023), (106, 47954),

Gene: ElGato\_73 Start: 46450, Stop: 46055, Start Num: 47  
Candidate Starts for ElGato\_73:  
(Start: 47 @46450 has 45 MA's), (49, 46444), (95, 46243), (106, 46198), (124, 46099),

Gene: Emaanora\_71 Start: 48213, Stop: 47797, Start Num: 46  
Candidate Starts for Emaanora\_71:  
(Start: 46 @48213 has 59 MA's), (76, 48060), (91, 48009), (106, 47940),

Gene: EnochSoames\_72 Start: 46471, Stop: 46064, Start Num: 47  
Candidate Starts for EnochSoames\_72:  
(10, 46672), (16, 46621), (Start: 47 @46471 has 45 MA's), (49, 46465), (Start: 53 @46453 has 1 MA's), (62, 46417), (76, 46321), (80, 46312), (89, 46282), (110, 46192), (124, 46108), (131, 46078),

Gene: Esperer\_69 Start: 46614, Stop: 46207, Start Num: 47  
Candidate Starts for Esperer\_69:  
(10, 46806), (16, 46755), (Start: 47 @46614 has 45 MA's), (49, 46608), (Start: 53 @46596 has 1 MA's), (62, 46560), (80, 46455), (89, 46425), (124, 46251), (127, 46239), (131, 46221),

Gene: EvilGenius\_87 Start: 50565, Stop: 50140, Start Num: 37  
Candidate Starts for EvilGenius\_87:  
(Start: 31 @50595 has 1 MA's), (Start: 37 @50565 has 19 MA's), (78, 50370), (81, 50364), (89, 50331), (124, 50184), (125, 50181), (130, 50154),

Gene: FiringLine\_87 Start: 49451, Stop: 49026, Start Num: 37  
Candidate Starts for FiringLine\_87:  
(28, 49499), (Start: 37 @49451 has 19 MA's), (78, 49256), (81, 49250), (89, 49217), (124, 49070), (125, 49067), (130, 49040),

Gene: First\_0088 Start: 49307, Stop: 48882, Start Num: 37

Candidate Starts for First\_0088:

(Start: 31 @49331 has 1 MA's), (Start: 37 @49307 has 19 MA's), (78, 49112), (81, 49106), (125, 48923), (130, 48896),

Gene: Gail\_89 Start: 48855, Stop: 48409, Start Num: 24

Candidate Starts for Gail\_89:

(Start: 24 @48855 has 15 MA's), (33, 48813), (34, 48807), (41, 48771), (Start: 50 @48741 has 4 MA's), (Start: 63 @48702 has 1 MA's), (123, 48462), (126, 48447), (130, 48423),

Gene: GirlDinner\_69 Start: 45753, Stop: 45328, Start Num: 46

Candidate Starts for GirlDinner\_69:

(Start: 46 @45753 has 59 MA's), (89, 45549), (102, 45495), (111, 45447), (131, 45342),

Gene: Goby\_71 Start: 48124, Stop: 47711, Start Num: 46

Candidate Starts for Goby\_71:

(16, 48256), (Start: 46 @48124 has 59 MA's), (62, 48070), (76, 47974), (89, 47932), (91, 47923), (106, 47854), (124, 47755),

Gene: GodPhather\_77 Start: 55342, Stop: 55824, Start Num: 24

Candidate Starts for GodPhather\_77:

(4, 55195), (5, 55198), (Start: 24 @55342 has 15 MA's), (32, 55378), (36, 55402), (Start: 47 @55453 has 45 MA's), (59, 55483), (61, 55495), (65, 55531), (74, 55576), (85, 55612), (127, 55792), (130, 55810), (132, 55813),

Gene: Godpower\_71 Start: 47416, Stop: 47003, Start Num: 46

Candidate Starts for Godpower\_71:

(16, 47548), (Start: 46 @47416 has 59 MA's), (62, 47362), (76, 47266), (91, 47215), (95, 47191), (106, 47146), (124, 47047),

Gene: GreenWeasel\_71 Start: 45410, Stop: 44994, Start Num: 47

Candidate Starts for GreenWeasel\_71:

(Start: 47 @45410 has 45 MA's), (49, 45404), (59, 45368), (76, 45260), (89, 45215), (92, 45197), (106, 45137), (124, 45038), (126, 45032), (127, 45026), (131, 45008),

Gene: Haizum\_69 Start: 45535, Stop: 45110, Start Num: 46

Candidate Starts for Haizum\_69:

(26, 45619), (Start: 46 @45535 has 59 MA's), (76, 45382), (106, 45253), (114, 45214), (129, 45133),

Gene: Hank144\_72 Start: 46341, Stop: 45922, Start Num: 46

Candidate Starts for Hank144\_72:

(29, 46422), (Start: 46 @46341 has 59 MA's), (57, 46311), (89, 46146), (124, 45969),

Gene: Hippo\_68 Start: 48275, Stop: 47859, Start Num: 46

Candidate Starts for Hippo\_68:

(Start: 46 @48275 has 59 MA's), (91, 48071), (106, 48002),

Gene: HippoHollow\_84 Start: 50112, Stop: 49744, Start Num: 37

Candidate Starts for HippoHollow\_84:

(Start: 37 @50112 has 19 MA's), (Start: 42 @50088 has 1 MA's), (59, 50025), (64, 50001), (78, 49923), (124, 49788), (125, 49785), (130, 49758),

Gene: Hydra\_71 Start: 47458, Stop: 47051, Start Num: 47

Candidate Starts for Hydra\_71:

(10, 47650), (16, 47599), (Start: 47 @47458 has 45 MA's), (49, 47452), (Start: 53 @47440 has 1 MA's), (62, 47404), (76, 47308), (80, 47299), (89, 47269), (124, 47095), (127, 47083), (131, 47065),

Gene: Indigo\_67 Start: 46264, Stop: 45857, Start Num: 47

Candidate Starts for Indigo\_67:

(10, 46456), (16, 46405), (Start: 47 @46264 has 45 MA's), (49, 46258), (Start: 53 @46246 has 1 MA's), (62, 46210), (76, 46114), (80, 46105), (89, 46075), (124, 45901), (127, 45889), (131, 45871),

Gene: Issmi\_70 Start: 45905, Stop: 45495, Start Num: 47

Candidate Starts for Issmi\_70:

(Start: 47 @45905 has 45 MA's), (59, 45863), (89, 45716), (106, 45638),

Gene: Itza\_77 Start: 48238, Stop: 47840, Start Num: 50

Candidate Starts for Itza\_77:

(Start: 50 @48238 has 4 MA's), (56, 48223), (57, 48220), (91, 48049), (127, 47872),

Gene: Iwokeuplikedis\_91 Start: 49657, Stop: 49196, Start Num: 37

Candidate Starts for Iwokeuplikedis\_91:

(Start: 37 @49657 has 19 MA's), (Start: 42 @49633 has 1 MA's), (Start: 47 @49612 has 45 MA's), (75, 49480), (78, 49468), (81, 49462), (126, 49234), (129, 49219), (130, 49210),

Gene: Izzy\_70 Start: 46812, Stop: 46405, Start Num: 47

Candidate Starts for Izzy\_70:

(10, 47013), (16, 46962), (20, 46935), (Start: 47 @46812 has 45 MA's), (49, 46806), (76, 46662), (80, 46653), (89, 46623), (110, 46533), (124, 46449), (127, 46437), (131, 46419),

Gene: Janus\_70 Start: 46093, Stop: 45668, Start Num: 46

Candidate Starts for Janus\_70:

(Start: 46 @46093 has 59 MA's), (89, 45889), (102, 45835), (111, 45787), (131, 45682),

Gene: Jash\_70 Start: 46765, Stop: 46358, Start Num: 47

Candidate Starts for Jash\_70:

(10, 46966), (16, 46915), (20, 46888), (Start: 47 @46765 has 45 MA's), (49, 46759), (76, 46615), (80, 46606), (89, 46576), (110, 46486), (124, 46402), (127, 46390), (131, 46372),

Gene: Jeeves\_89 Start: 47635, Stop: 47189, Start Num: 24

Candidate Starts for Jeeves\_89:

(Start: 24 @47635 has 15 MA's), (33, 47593), (Start: 63 @47482 has 1 MA's), (74, 47413), (123, 47242), (126, 47227),

Gene: Jeon\_73 Start: 54835, Stop: 55317, Start Num: 24

Candidate Starts for Jeon\_73:

(4, 54688), (5, 54691), (Start: 24 @54835 has 15 MA's), (32, 54871), (36, 54895), (Start: 47 @54946 has 45 MA's), (59, 54976), (61, 54988), (65, 55024), (74, 55069), (85, 55105), (127, 55285), (130, 55303), (132, 55306),

Gene: Jevington\_72 Start: 45336, Stop: 44923, Start Num: 47

Candidate Starts for Jevington\_72:

(Start: 47 @45336 has 45 MA's), (49, 45330), (Start: 53 @45318 has 1 MA's), (106, 45066), (124, 44967), (126, 44961), (127, 44955),

Gene: Jhitchelle\_69 Start: 45621, Stop: 45214, Start Num: 47

Candidate Starts for Jhitchelle\_69:

(Start: 47 @45621 has 45 MA's), (76, 45477), (91, 45426), (106, 45357), (132, 45225),

Gene: JonJames\_194 Start: 97288, Stop: 96896, Start Num: 46

Candidate Starts for JonJames\_194:

(1, 97642), (25, 97396), (35, 97342), (39, 97315), (Start: 46 @97288 has 59 MA's), (Start: 47 @97285 has 45 MA's), (68, 97210), (70, 97198), (79, 97153), (84, 97141), (98, 97075), (99, 97072), (128, 96922), (130, 96910), (132, 96907),

Gene: JoshKayV\_90 Start: 49922, Stop: 49461, Start Num: 37

Candidate Starts for JoshKayV\_90:

(7, 50111), (Start: 37 @49922 has 19 MA's), (Start: 43 @49889 has 2 MA's), (78, 49733), (81, 49727), (117, 49562), (130, 49475),

Gene: Kaine\_72 Start: 46359, Stop: 45949, Start Num: 47

Candidate Starts for Kaine\_72:

(Start: 47 @46359 has 45 MA's), (76, 46212), (106, 46092), (124, 45993), (127, 45981), (131, 45963),

Gene: Katalie\_67 Start: 48006, Stop: 47593, Start Num: 46

Candidate Starts for Katalie\_67:

(16, 48138), (19, 48117), (30, 48060), (Start: 46 @48006 has 59 MA's), (62, 47952), (76, 47856), (91, 47805), (106, 47736),

Gene: KingCyrus\_86 Start: 50578, Stop: 50153, Start Num: 37

Candidate Starts for KingCyrus\_86:

(Start: 31 @50608 has 1 MA's), (Start: 37 @50578 has 19 MA's), (78, 50383), (81, 50377), (89, 50344), (124, 50197), (125, 50194), (130, 50167),

Gene: LadyBird\_91 Start: 49745, Stop: 49377, Start Num: 37

Candidate Starts for LadyBird\_91:

(Start: 31 @49769 has 1 MA's), (Start: 37 @49745 has 19 MA's), (Start: 42 @49721 has 1 MA's), (Start: 63 @49643 has 1 MA's), (78, 49556), (124, 49421), (125, 49418), (130, 49391),

Gene: Lannister\_68 Start: 47002, Stop: 46589, Start Num: 46

Candidate Starts for Lannister\_68:

(Start: 46 @47002 has 59 MA's), (76, 46852), (91, 46801), (106, 46732), (131, 46603),

Gene: Legacy\_68 Start: 46647, Stop: 46240, Start Num: 47

Candidate Starts for Legacy\_68:

(10, 46839), (16, 46788), (Start: 47 @46647 has 45 MA's), (49, 46641), (Start: 53 @46629 has 1 MA's), (62, 46593), (76, 46497), (80, 46488), (89, 46458), (124, 46284), (127, 46272), (131, 46254),

Gene: Leopard\_59 Start: 44129, Stop: 44626, Start Num: 21

Candidate Starts for Leopard\_59:

(Start: 21 @44129 has 2 MA's), (Start: 24 @44147 has 15 MA's), (34, 44195), (36, 44204), (41, 44231), (52, 44267), (55, 44276), (65, 44345), (70, 44360), (73, 44378), (86, 44423), (91, 44447), (94, 44459), (123, 44573), (124, 44582), (130, 44612),

Gene: Leviticus\_69 Start: 46801, Stop: 46394, Start Num: 47

Candidate Starts for Leviticus\_69:

(10, 46993), (16, 46942), (Start: 47 @46801 has 45 MA's), (49, 46795), (Start: 53 @46783 has 1 MA's), (62, 46747), (76, 46651), (80, 46642), (89, 46612), (124, 46438), (127, 46426), (131, 46408),

Gene: Lika\_70 Start: 47969, Stop: 47556, Start Num: 46

Candidate Starts for Lika\_70:

(16, 48101), (Start: 46 @47969 has 59 MA's), (62, 47915), (76, 47819), (91, 47768), (95, 47744), (106, 47699), (124, 47600),

Gene: LilJank\_6 Start: 1753, Stop: 1382, Start Num: 58

Candidate Starts for LilJank\_6:

(22, 1909), (52, 1768), (58, 1753), (69, 1678), (72, 1666), (79, 1636), (83, 1627), (107, 1522), (132, 1393),

Gene: LilyPad\_45 Start: 34622, Stop: 35053, Start Num: 42

Candidate Starts for LilyPad\_45:

(Start: 42 @34622 has 1 MA's), (Start: 43 @34631 has 2 MA's), (44, 34637), (48, 34643), (Start: 50 @34649 has 4 MA's), (68, 34736), (77, 34793), (88, 34826), (101, 34880), (120, 34967), (122, 34985), (128, 35027), (132, 35042),

Gene: LionsBait\_86 Start: 50052, Stop: 49684, Start Num: 37

Candidate Starts for LionsBait\_86:

(Start: 37 @50052 has 19 MA's), (Start: 42 @50028 has 1 MA's), (59, 49965), (64, 49941), (78, 49863), (124, 49728), (125, 49725), (130, 49698),

Gene: LittleFella\_50 Start: 36384, Stop: 36764, Start Num: 63

Candidate Starts for LittleFella\_50:

(9, 36108), (15, 36156), (23, 36207), (27, 36225), (Start: 31 @36243 has 1 MA's), (60, 36369), (Start: 63 @36384 has 1 MA's), (67, 36426), (100, 36588), (109, 36630), (118, 36663), (121, 36690), (122, 36696), (131, 36750), (132, 36753),

Gene: Lokk\_83 Start: 47597, Stop: 47172, Start Num: 37

Candidate Starts for Lokk\_83:

(Start: 31 @47627 has 1 MA's), (Start: 37 @47597 has 19 MA's), (78, 47402), (81, 47396), (89, 47363), (124, 47216), (125, 47213),

Gene: Loofah\_77 Start: 47253, Stop: 46837, Start Num: 47

Candidate Starts for Loofah\_77:

(Start: 47 @47253 has 45 MA's), (97, 47019), (106, 46980), (124, 46881),

Gene: Lorelei\_70 Start: 47260, Stop: 46847, Start Num: 46

Candidate Starts for Lorelei\_70:

(Start: 43 @47266 has 2 MA's), (Start: 46 @47260 has 59 MA's), (62, 47206), (76, 47110), (89, 47068), (91, 47059), (106, 46990), (124, 46891),

Gene: Luchador\_86 Start: 48736, Stop: 48290, Start Num: 24

Candidate Starts for Luchador\_86:

(Start: 24 @48736 has 15 MA's), (33, 48694), (34, 48688), (41, 48652), (Start: 50 @48622 has 4 MA's), (Start: 63 @48583 has 1 MA's), (94, 48445), (126, 48328), (130, 48304),

Gene: Madi\_41 Start: 33171, Stop: 33617, Start Num: 40

Candidate Starts for Madi\_41:

(26, 33096), (38, 33168), (Start: 40 @33171 has 7 MA's), (58, 33219), (82, 33369), (89, 33399), (90, 33405), (93, 33423), (103, 33456), (126, 33579), (132, 33606),

Gene: Maneekul\_68 Start: 48306, Stop: 47890, Start Num: 46

Candidate Starts for Maneekul\_68:

(Start: 46 @48306 has 59 MA's), (76, 48153), (91, 48102), (106, 48033),

Gene: Marav\_72 Start: 45322, Stop: 44909, Start Num: 47

Candidate Starts for Marav\_72:

(Start: 47 @45322 has 45 MA's), (49, 45316), (Start: 53 @45304 has 1 MA's), (66, 45229), (106, 45052), (124, 44953), (126, 44947), (127, 44941),

Gene: Megabear\_76 Start: 54933, Stop: 55415, Start Num: 24

Candidate Starts for Megabear\_76:

(Start: 24 @54933 has 15 MA's), (32, 54969), (33, 54978), (36, 54993), (Start: 47 @55044 has 45 MA's), (59, 55074), (61, 55086), (65, 55122), (74, 55167), (127, 55383), (130, 55401), (132, 55404),

Gene: MyraDee\_81 Start: 45138, Stop: 44695, Start Num: 24

Candidate Starts for MyraDee\_81:

(Start: 24 @45138 has 15 MA's), (33, 45096), (34, 45090), (36, 45081), (Start: 63 @44985 has 1 MA's), (74, 44919), (123, 44748),

Gene: Nabi\_71 Start: 47829, Stop: 47416, Start Num: 46

Candidate Starts for Nabi\_71:

(Start: 43 @47835 has 2 MA's), (Start: 46 @47829 has 59 MA's), (62, 47775), (76, 47679), (89, 47637), (91, 47628), (106, 47559), (124, 47460),

Gene: Nanodon\_70 Start: 46931, Stop: 46518, Start Num: 46

Candidate Starts for Nanodon\_70:

(3, 47174), (11, 47120), (16, 47072), (20, 47045), (Start: 46 @46931 has 59 MA's), (76, 46781), (91, 46730), (106, 46661), (131, 46532),

Gene: Nerdos\_67 Start: 46263, Stop: 45856, Start Num: 47

Candidate Starts for Nerdos\_67:

(10, 46455), (16, 46404), (Start: 47 @46263 has 45 MA's), (49, 46257), (Start: 53 @46245 has 1 MA's), (62, 46209), (80, 46104), (89, 46074), (124, 45900), (127, 45888), (131, 45870),

Gene: Nishikigoi\_70 Start: 45535, Stop: 45110, Start Num: 46

Candidate Starts for Nishikigoi\_70:

(26, 45619), (Start: 46 @45535 has 59 MA's), (76, 45382), (106, 45253), (114, 45214), (129, 45133),

Gene: Oliynyk\_70 Start: 46674, Stop: 46267, Start Num: 47

Candidate Starts for Oliynyk\_70:

(10, 46875), (16, 46824), (Start: 47 @46674 has 45 MA's), (49, 46668), (Start: 53 @46656 has 1 MA's), (62, 46620), (76, 46524), (80, 46515), (89, 46485), (110, 46395), (124, 46311), (131, 46281),

Gene: Omar\_74 Start: 44684, Stop: 44262, Start Num: 47

Candidate Starts for Omar\_74:

(Start: 47 @44684 has 45 MA's), (49, 44678), (Start: 53 @44666 has 1 MA's), (78, 44525), (89, 44483), (106, 44405), (119, 44354), (127, 44294),

Gene: Onyinye\_60 Start: 44029, Stop: 44508, Start Num: 24

Candidate Starts for Onyinye\_60:

(Start: 21 @44011 has 2 MA's), (Start: 24 @44029 has 15 MA's), (34, 44077), (36, 44086), (41, 44113), (52, 44149), (55, 44158), (65, 44227), (70, 44242), (73, 44260), (86, 44305), (91, 44329), (94, 44341), (123, 44455), (124, 44464), (130, 44494),

Gene: Ozzie\_68 Start: 46656, Stop: 46249, Start Num: 47

Candidate Starts for Ozzie\_68:

(10, 46848), (16, 46797), (Start: 47 @46656 has 45 MA's), (49, 46650), (Start: 53 @46638 has 1 MA's), (62, 46602), (76, 46506), (80, 46497), (89, 46467), (124, 46293), (127, 46281), (131, 46263),

Gene: OzzyJ\_70 Start: 48209, Stop: 47793, Start Num: 46

Candidate Starts for OzzyJ\_70:

(18, 48341), (Start: 46 @48209 has 59 MA's), (76, 48056), (91, 48005), (106, 47936),

Gene: PR\_77 Start: 55622, Stop: 56104, Start Num: 24

Candidate Starts for PR\_77:

(Start: 24 @55622 has 15 MA's), (32, 55658), (33, 55667), (36, 55682), (Start: 47 @55733 has 45 MA's), (59, 55763), (61, 55775), (65, 55811), (74, 55856), (127, 56072), (130, 56090), (132, 56093),

Gene: Pablito\_69 Start: 44922, Stop: 44506, Start Num: 46

Candidate Starts for Pablito\_69:

(Start: 46 @44922 has 59 MA's), (57, 44892), (89, 44727),

Gene: Paedore\_74 Start: 47422, Stop: 47006, Start Num: 47

Candidate Starts for Paedore\_74:

(Start: 47 @47422 has 45 MA's), (97, 47188), (106, 47149), (124, 47050),

Gene: Paolo\_74 Start: 46593, Stop: 46171, Start Num: 47

Candidate Starts for Paolo\_74:

(Start: 47 @46593 has 45 MA's), (49, 46587), (Start: 53 @46575 has 1 MA's), (91, 46383), (106, 46314), (110, 46302), (127, 46203),

Gene: Pavo\_73 Start: 46535, Stop: 46125, Start Num: 47

Candidate Starts for Pavo\_73:

(Start: 47 @46535 has 45 MA's), (76, 46388), (106, 46268), (124, 46169), (127, 46157), (131, 46139),

Gene: Phettuccine\_68 Start: 46264, Stop: 45857, Start Num: 47

Candidate Starts for Phettuccine\_68:

(10, 46456), (16, 46405), (Start: 47 @46264 has 45 MA's), (49, 46258), (Start: 53 @46246 has 1 MA's), (62, 46210), (76, 46114), (80, 46105), (89, 46075), (124, 45901), (127, 45889), (131, 45871),

Gene: Provolone\_73 Start: 46676, Stop: 46266, Start Num: 47

Candidate Starts for Provolone\_73:

(Start: 47 @46676 has 45 MA's), (76, 46529), (106, 46409), (124, 46310), (127, 46298), (131, 46280),

Gene: Puginator\_74 Start: 46641, Stop: 46219, Start Num: 47

Candidate Starts for Puginator\_74:

(Start: 47 @46641 has 45 MA's), (49, 46635), (Start: 53 @46623 has 1 MA's), (91, 46431), (106, 46362),

Gene: QueenBeesly\_87 Start: 49451, Stop: 49026, Start Num: 37

Candidate Starts for QueenBeesly\_87:

(28, 49499), (Start: 37 @49451 has 19 MA's), (78, 49256), (81, 49250), (89, 49217), (124, 49070), (125, 49067), (130, 49040),

Gene: R4\_73 Start: 46265, Stop: 45852, Start Num: 47

Candidate Starts for R4\_73:

(Start: 47 @46265 has 45 MA's), (97, 46031), (106, 45992), (124, 45896),

Gene: Rana\_71 Start: 47682, Stop: 47269, Start Num: 46

Candidate Starts for Rana\_71:

(Start: 43 @47688 has 2 MA's), (Start: 46 @47682 has 59 MA's), (62, 47628), (76, 47532), (89, 47490), (91, 47481), (106, 47412), (124, 47313),

Gene: RedBear\_68 Start: 48006, Stop: 47593, Start Num: 46

Candidate Starts for RedBear\_68:

(16, 48138), (19, 48117), (30, 48060), (Start: 46 @48006 has 59 MA's), (62, 47952), (76, 47856), (91, 47805), (106, 47736),

Gene: RedRock\_88 Start: 49617, Stop: 49192, Start Num: 37

Candidate Starts for RedRock\_88:

(Start: 31 @49641 has 1 MA's), (Start: 37 @49617 has 19 MA's), (78, 49422), (81, 49416), (89, 49383), (125, 49233),

Gene: Rusticus\_70 Start: 46765, Stop: 46358, Start Num: 47

Candidate Starts for Rusticus\_70:

(10, 46966), (16, 46915), (20, 46888), (Start: 47 @46765 has 45 MA's), (49, 46759), (76, 46615), (80, 46606), (89, 46576), (110, 46486), (124, 46402), (127, 46390), (131, 46372),

Gene: Saftant\_70 Start: 46404, Stop: 46009, Start Num: 47

Candidate Starts for Saftant\_70:

(Start: 47 @46404 has 45 MA's), (49, 46398), (91, 46221), (95, 46197), (106, 46152), (124, 46053),

Gene: SarahRose\_68 Start: 48276, Stop: 47860, Start Num: 46

Candidate Starts for SarahRose\_68:

(Start: 46 @48276 has 59 MA's), (76, 48123), (91, 48072), (106, 48003),

Gene: SemperFi\_87 Start: 49339, Stop: 48914, Start Num: 37

Candidate Starts for SemperFi\_87:

(28, 49387), (Start: 37 @49339 has 19 MA's), (78, 49144), (81, 49138), (89, 49105), (124, 48958), (125, 48955), (130, 48928),

Gene: Sienna\_41 Start: 33171, Stop: 33617, Start Num: 40

Candidate Starts for Sienna\_41:

(26, 33096), (38, 33168), (Start: 40 @33171 has 7 MA's), (58, 33219), (82, 33369), (89, 33399), (90, 33405), (93, 33423), (103, 33456), (126, 33579), (132, 33606),

Gene: Snorlax\_68 Start: 48301, Stop: 47885, Start Num: 46

Candidate Starts for Snorlax\_68:

(Start: 46 @48301 has 59 MA's), (76, 48148), (91, 48097), (106, 48028),

Gene: SororFago\_86 Start: 48617, Stop: 48171, Start Num: 24

Candidate Starts for SororFago\_86:

(Start: 24 @48617 has 15 MA's), (33, 48575), (34, 48569), (41, 48533), (Start: 50 @48503 has 4 MA's), (Start: 63 @48464 has 1 MA's), (105, 48302), (123, 48224), (126, 48209), (130, 48185),

Gene: South40\_67 Start: 48006, Stop: 47593, Start Num: 46

Candidate Starts for South40\_67:

(16, 48138), (19, 48117), (30, 48060), (Start: 46 @48006 has 59 MA's), (62, 47952), (76, 47856), (91, 47805), (106, 47736),

Gene: SpeedDemon\_1400 Start: 83731, Stop: 83333, Start Num: 45  
Candidate Starts for SpeedDemon\_1400:  
(Start: 45 @83731 has 3 MA's), (62, 83674), (Start: 63 @83671 has 1 MA's), (64, 83662), (96, 83509),  
(99, 83500), (116, 83437), (128, 83359),

Gene: Speedwell\_74 Start: 47114, Stop: 46701, Start Num: 47  
Candidate Starts for Speedwell\_74:  
(Start: 47 @47114 has 45 MA's), (49, 47108), (76, 46964), (91, 46913), (95, 46889), (106, 46844),  
(127, 46733),

Gene: SqueakyClean\_70 Start: 46271, Stop: 45846, Start Num: 46  
Candidate Starts for SqueakyClean\_70:  
(Start: 46 @46271 has 59 MA's), (89, 46067), (102, 46013), (111, 45965), (131, 45860),

Gene: Sudan\_72 Start: 46342, Stop: 45932, Start Num: 47  
Candidate Starts for Sudan\_72:  
(Start: 47 @46342 has 45 MA's), (76, 46195), (106, 46075), (124, 45976), (127, 45964), (131, 45946),

Gene: Sujidade\_71 Start: 48272, Stop: 47853, Start Num: 43  
Candidate Starts for Sujidade\_71:  
(16, 48398), (Start: 43 @48272 has 2 MA's), (Start: 46 @48266 has 59 MA's), (62, 48212), (76, 48116),  
(91, 48065), (95, 48041), (106, 47996), (124, 47897),

Gene: Sunhee\_88 Start: 47104, Stop: 46658, Start Num: 24  
Candidate Starts for Sunhee\_88:  
(Start: 24 @47104 has 15 MA's), (Start: 50 @46990 has 4 MA's), (Start: 63 @46951 has 1 MA's), (64,  
46942), (123, 46711), (124, 46702), (130, 46672),

Gene: SunkenRoot\_73 Start: 46709, Stop: 46299, Start Num: 47  
Candidate Starts for SunkenRoot\_73:  
(Start: 47 @46709 has 45 MA's), (76, 46562), (106, 46442), (124, 46343), (127, 46331), (131, 46313),

Gene: SunsetPointe\_68 Start: 46663, Stop: 46256, Start Num: 47  
Candidate Starts for SunsetPointe\_68:  
(10, 46855), (16, 46804), (Start: 47 @46663 has 45 MA's), (49, 46657), (Start: 53 @46645 has 1 MA's),  
(62, 46609), (76, 46513), (80, 46504), (89, 46474), (124, 46300), (127, 46288), (131, 46270),

Gene: Superstar\_76 Start: 45702, Stop: 45277, Start Num: 46  
Candidate Starts for Superstar\_76:  
(Start: 46 @45702 has 59 MA's), (87, 45507), (106, 45420), (114, 45381),

Gene: Suzy\_41 Start: 33689, Stop: 34132, Start Num: 40  
Candidate Starts for Suzy\_41:  
(26, 33614), (38, 33686), (Start: 40 @33689 has 7 MA's), (Start: 43 @33704 has 2 MA's), (Start: 50  
@33722 has 4 MA's), (68, 33815), (77, 33872), (104, 33980), (122, 34064), (124, 34088), (126,  
34094), (132, 34121),

Gene: TagePighther\_70 Start: 48276, Stop: 47860, Start Num: 46  
Candidate Starts for TagePighther\_70:  
(Start: 46 @48276 has 59 MA's), (76, 48123), (91, 48072), (106, 48003),

Gene: Taptic\_79 Start: 55327, Stop: 55809, Start Num: 24  
Candidate Starts for Taptic\_79:

(Start: 24 @55327 has 15 MA's), (32, 55363), (33, 55372), (36, 55387), (Start: 47 @55438 has 45 MA's), (59, 55468), (61, 55480), (65, 55516), (74, 55561), (127, 55777), (130, 55795), (132, 55798),

Gene: TarsusIV\_86 Start: 49301, Stop: 48876, Start Num: 37

Candidate Starts for TarsusIV\_86:

(Start: 31 @49331 has 1 MA's), (Start: 37 @49301 has 19 MA's), (78, 49106), (81, 49100), (90, 49061), (124, 48920), (125, 48917), (130, 48890),

Gene: Tefunt\_69 Start: 45449, Stop: 45024, Start Num: 46

Candidate Starts for Tefunt\_69:

(26, 45533), (Start: 46 @45449 has 59 MA's), (76, 45296), (106, 45167), (114, 45128), (129, 45047),

Gene: Terapin\_42 Start: 33095, Stop: 33541, Start Num: 40

Candidate Starts for Terapin\_42:

(26, 33020), (38, 33092), (Start: 40 @33095 has 7 MA's), (58, 33143), (82, 33293), (89, 33323), (90, 33329), (93, 33347), (103, 33380), (126, 33503), (132, 33530),

Gene: Thestral\_72 Start: 47423, Stop: 46998, Start Num: 46

Candidate Starts for Thestral\_72:

(Start: 46 @47423 has 59 MA's), (62, 47366), (89, 47219), (91, 47210), (106, 47141),

Gene: TinaBelcher\_70 Start: 47285, Stop: 46860, Start Num: 46

Candidate Starts for TinaBelcher\_70:

(Start: 46 @47285 has 59 MA's), (62, 47228), (89, 47081), (91, 47072), (106, 47003), (127, 46892),

Gene: Toma\_71 Start: 48127, Stop: 47714, Start Num: 46

Candidate Starts for Toma\_71:

(16, 48259), (Start: 46 @48127 has 59 MA's), (62, 48073), (76, 47977), (89, 47935), (91, 47926), (106, 47857), (124, 47758),

Gene: Towmatter\_127 Start: 77323, Stop: 76922, Start Num: 46

Candidate Starts for Towmatter\_127:

(2, 77659), (6, 77581), (13, 77530), (14, 77524), (Start: 46 @77323 has 59 MA's), (68, 77221), (90, 77134), (104, 77065), (113, 77035), (115, 77029), (125, 76963),

Gene: Triste\_69 Start: 48275, Stop: 47859, Start Num: 46

Candidate Starts for Triste\_69:

(Start: 46 @48275 has 59 MA's), (76, 48122), (91, 48071), (106, 48002),

Gene: Triumph\_72 Start: 46096, Stop: 45671, Start Num: 46

Candidate Starts for Triumph\_72:

(12, 46294), (17, 46243), (Start: 46 @46096 has 59 MA's), (89, 45892), (106, 45814),

Gene: TrvxScott\_69 Start: 47390, Stop: 46965, Start Num: 46

Candidate Starts for TrvxScott\_69:

(Start: 46 @47390 has 59 MA's), (62, 47333), (89, 47186), (91, 47177), (106, 47108), (127, 46997),

Gene: TuanPN\_66 Start: 48227, Stop: 47811, Start Num: 46

Candidate Starts for TuanPN\_66:

(Start: 46 @48227 has 59 MA's), (76, 48074), (91, 48023), (106, 47954),

Gene: Unstoppable\_68 Start: 46262, Stop: 45855, Start Num: 47

Candidate Starts for Unstoppable\_68:

(10, 46454), (16, 46403), (Start: 47 @46262 has 45 MA's), (49, 46256), (Start: 53 @46244 has 1 MA's), (62, 46208), (76, 46112), (80, 46103), (89, 46073), (124, 45899), (127, 45887), (131, 45869),

Gene: Urza\_76 Start: 48260, Stop: 47862, Start Num: 50

Candidate Starts for Urza\_76:

(Start: 50 @48260 has 4 MA's), (56, 48245), (57, 48242), (91, 48071), (127, 47894),

Gene: VA6\_87 Start: 49239, Stop: 48814, Start Num: 37

Candidate Starts for VA6\_87:

(Start: 31 @49263 has 1 MA's), (Start: 37 @49239 has 19 MA's), (78, 49044), (81, 49038), (125, 48855), (130, 48828),

Gene: Vanseggelen\_77 Start: 46192, Stop: 45782, Start Num: 47

Candidate Starts for Vanseggelen\_77:

(Start: 47 @46192 has 45 MA's), (76, 46045), (91, 45994), (106, 45925), (132, 45793),

Gene: Verabelle\_74 Start: 45631, Stop: 45221, Start Num: 47

Candidate Starts for Verabelle\_74:

(Start: 47 @45631 has 45 MA's), (76, 45484), (91, 45433), (106, 45364), (132, 45232),

Gene: Verse\_72 Start: 46973, Stop: 46563, Start Num: 47

Candidate Starts for Verse\_72:

(Start: 47 @46973 has 45 MA's), (76, 46826), (106, 46706), (124, 46607), (127, 46595), (131, 46577),

Gene: VieEnRose\_75 Start: 47997, Stop: 47602, Start Num: 50

Candidate Starts for VieEnRose\_75:

(Start: 50 @47997 has 4 MA's), (57, 47982), (91, 47811), (127, 47634),

Gene: Werner\_68 Start: 48273, Stop: 47857, Start Num: 46

Candidate Starts for Werner\_68:

(Start: 46 @48273 has 59 MA's), (76, 48120), (91, 48069), (106, 48000),

Gene: Whatever\_68 Start: 48298, Stop: 47882, Start Num: 46

Candidate Starts for Whatever\_68:

(Start: 46 @48298 has 59 MA's), (76, 48145), (91, 48094), (106, 48025),

Gene: Yasdniil\_68 Start: 48325, Stop: 47909, Start Num: 46

Candidate Starts for Yasdniil\_68:

(Start: 46 @48325 has 59 MA's), (76, 48172), (91, 48121), (106, 48052),

Gene: Yosif\_73 Start: 46919, Stop: 46539, Start Num: 51

Candidate Starts for Yosif\_73:

(Start: 51 @46919 has 1 MA's), (54, 46910), (59, 46889), (91, 46748), (124, 46583),

Gene: Yvonnetastic\_195 Start: 94338, Stop: 93922, Start Num: 46

Candidate Starts for Yvonnetastic\_195:

(Start: 46 @94338 has 59 MA's), (68, 94236), (70, 94224), (79, 94179), (84, 94167), (98, 94101), (99, 94098), (126, 93960), (130, 93936), (132, 93933),

Gene: Zainub\_74 Start: 46567, Stop: 46145, Start Num: 47

Candidate Starts for Zainub\_74:

(Start: 47 @46567 has 45 MA's), (49, 46561), (Start: 53 @46549 has 1 MA's), (91, 46357), (106, 46288), (110, 46276), (127, 46177),

Gene: ZamZam\_72 Start: 46716, Stop: 46321, Start Num: 47

Candidate Starts for ZamZam\_72:

(Start: 47 @46716 has 45 MA's), (49, 46710), (91, 46533), (106, 46464), (124, 46365),

Gene: Zemlya\_71 Start: 47803, Stop: 47384, Start Num: 43

Candidate Starts for Zemlya\_71:

(3, 48028), (11, 47974), (16, 47929), (Start: 43 @47803 has 2 MA's), (Start: 46 @47797 has 59 MA's), (62, 47743), (76, 47647), (91, 47596), (106, 47527), (124, 47428),

Gene: phiCAM\_68 Start: 47795, Stop: 47385, Start Num: 47

Candidate Starts for phiCAM\_68:

(Start: 47 @47795 has 45 MA's), (76, 47648), (106, 47528), (112, 47501), (114, 47489), (124, 47429), (127, 47417),