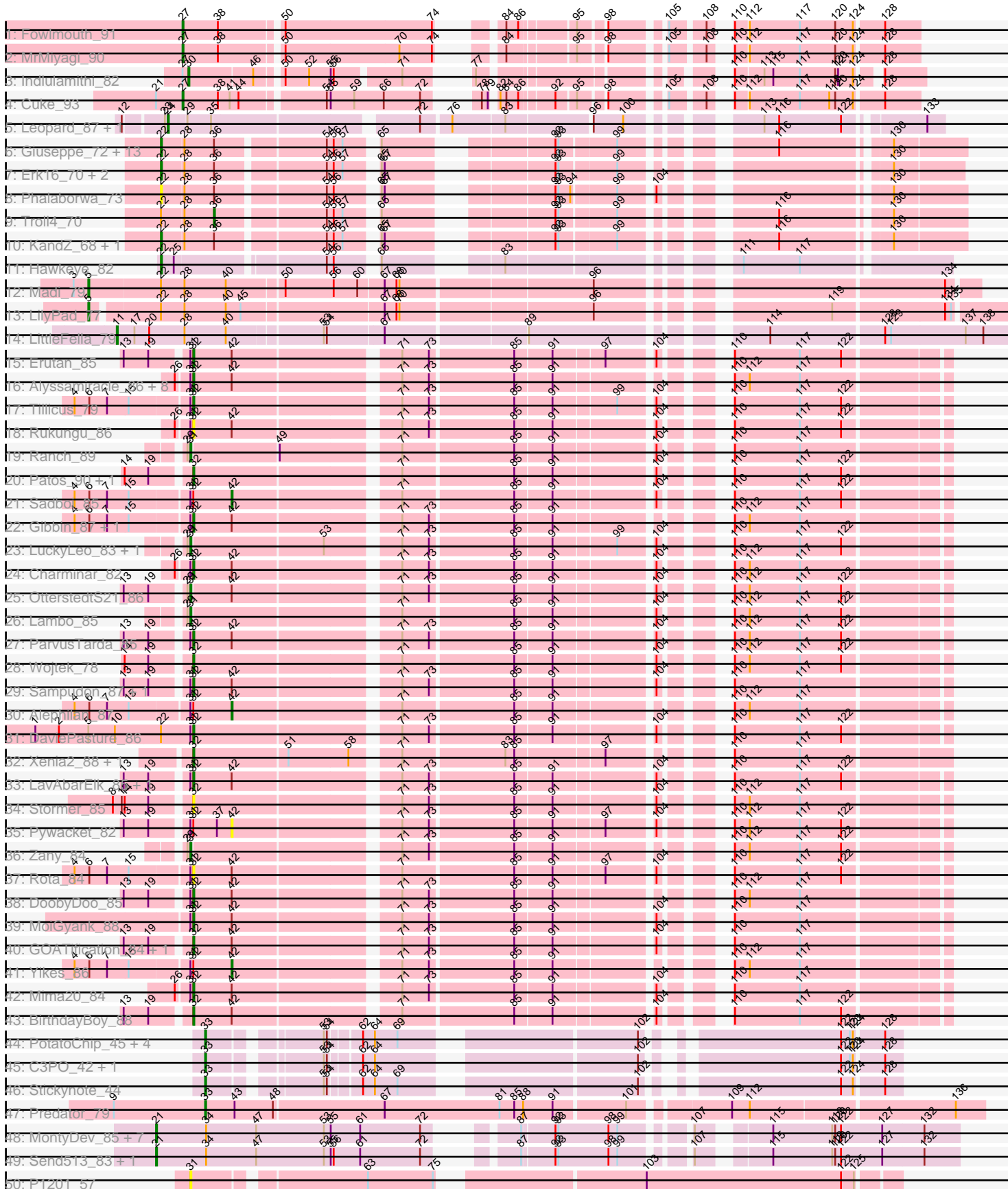


Pham 311439





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 311439 Report

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

Pham number 311439 has 97 members, 8 are drafts.

Phages represented in each track:

- Track 1 : Fowlmouth\_91
- Track 2 : MrMiyagi\_90
- Track 3 : Indlulamithi\_82
- Track 4 : Cuke\_93
- Track 5 : Leopard\_87, Onyinye\_87
- Track 6 : Giuseppe\_72, Mopey\_72, Visconti\_71, Adjutor\_68, Helpful\_73, SuperheroCarly\_70, Penelope2018\_70, Butterscotch\_68, Thoth\_70, SirHarley\_72, Delton\_70, Nova\_70, BigMama\_68, Prager\_71
- Track 7 : Erk16\_70, WaldoWhy\_72, Chill\_72
- Track 8 : Phalaborwa\_73
- Track 9 : Troll4\_70
- Track 10 : KandZ\_68, PLOT\_70
- Track 11 : Hawkeye\_82
- Track 12 : Madi\_79
- Track 13 : LilyPad\_77
- Track 14 : LittleFella\_79
- Track 15 : Erutan\_85
- Track 16 : Alyssamiracle\_86, Genamy16\_86, Rumi\_84, Riduram\_82, Avian\_81, RazorC\_83, NovaSharks\_85, Jamemuya19\_81, Astralis\_83
- Track 17 : Tillicus\_79
- Track 18 : Rukungu\_86
- Track 19 : Ranch\_89
- Track 20 : Patos\_90, NorManre\_90
- Track 21 : Sadboi\_85
- Track 22 : Gibbin\_87, GretelLyn\_85
- Track 23 : LuckyLeo\_83, Apeppi\_81
- Track 24 : Charminar\_82
- Track 25 : OtterstedtS21\_86
- Track 26 : Lambo\_85
- Track 27 : ParvusTarda\_85
- Track 28 : Wojtek\_78
- Track 29 : Sampudon\_87, Jalebi\_85
- Track 30 : Alephilan\_87
- Track 31 : DaviePasture\_86
- Track 32 : Xenia2\_88, DumpTruck\_88
- Track 33 : LavAbarElk\_85, Lila22\_86
- Track 34 : Stormer\_85

- Track 35 : Pywacket\_82
- Track 36 : Zany\_84
- Track 37 : Rota\_84
- Track 38 : DoobyDoo\_85
- Track 39 : MoiGyank\_88
- Track 40 : GOATification\_84, Fulcrum\_84
- Track 41 : Yikes\_86
- Track 42 : Mima20\_84
- Track 43 : BirthdayBoy\_88
- Track 44 : PotatoChip\_45, Darwin\_46, Kimchi1738\_42, PeteyPab\_44, Zion\_45
- Track 45 : C3PO\_42, Cruella\_42
- Track 46 : Stickynote\_44
- Track 47 : Predator\_79
- Track 48 : MontyDev\_85, Nilo\_86, Riparian\_85, Candle\_81, Weiss13\_83, Zenon\_85, Yelo\_82, Papyrus\_82
- Track 49 : Send513\_83, Rope\_83
- Track 50 : P1201\_57
- Track 51 : ChewyVIII\_69
- Track 52 : Gallia\_53

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

The start number called the most often in the published annotations is 32, it was called in 30 of the 89 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alyssmiracle\_86, Astralis\_83, Avian\_81, BirthdayBoy\_88, Charminar\_82, DaviePasture\_86, DoobyDoo\_85, DumpTruck\_88, Erutan\_85, Fulcrum\_84, GOATification\_84, Genamy16\_86, Gibbin\_87, GretellLyn\_85, Jalebi\_85, Jamemuya19\_81, LavAbarElk\_85, Lila22\_86, Mima20\_84, MoiGyank\_88, NorManre\_90, NovaSharks\_85, ParvusTarda\_85, Patos\_90, RazorC\_83, Riduram\_82, Rota\_84, Rukungu\_86, Rumi\_84, Sampudon\_87, Stormer\_85, Tillicus\_79, Wojtek\_78, Xenia2\_88,

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

- Alephilan\_87, Pywacket\_82, Sadboi\_85, Yikes\_86,

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

- Adjutor\_68, Apeppi\_81, BigMama\_68, Butterscotch\_68, C3PO\_42, Candle\_81, ChewyVIII\_69, Chill\_72, Cruella\_42, Cuke\_93, Darwin\_46, Delton\_70, Erk16\_70, Fowlmouth\_91, Gallia\_53, Giuseppe\_72, Hawkeye\_82, Helpful\_73, Indlulamithi\_82, KandZ\_68, Kimchi1738\_42, Lambo\_85, Leopard\_87, LilyPad\_77, LittleFella\_79, LuckyLeo\_83, Madi\_79, MontyDev\_85, Mopey\_72, MrMiyagi\_90, Nilo\_86, Nova\_70, Onyinye\_87, OtterstedtS21\_86, P1201\_57, PLOT\_70, Papyrus\_82, Penelope2018\_70, PeteyPab\_44, Phalaborwa\_73, PotatoChip\_45, Prager\_71, Predator\_79, Ranch\_89, Riparian\_85, Rope\_83, Send513\_83, SirHarley\_72, Stickynote\_44, SuperheroCarly\_70, Thoth\_70, Troll4\_70, Visconti\_71, WaldoWhy\_72, Weiss13\_83, Yelo\_82, Zany\_84, Zenon\_85, Zion\_45,

**Summary by start number:**

Start 5:

- Found in 3 of 97 ( 3.1% ) of genes in pham
- Manual Annotations of this start: 2 of 89
- Called 66.7% of time when present
- Phage (with cluster) where this start called: LilyPad\_77 (DG1), Madi\_79 (DG1),

Start 11:

- Found in 1 of 97 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 89
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LittleFella\_79 (DG2),

Start 18:

- Found in 1 of 97 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 89
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ChewyVIII\_69 (singleton),

Start 21:

- Found in 11 of 97 ( 11.3% ) of genes in pham
- Manual Annotations of this start: 10 of 89
- Called 90.9% of time when present
- Phage (with cluster) where this start called: Candle\_81 (R), MontyDev\_85 (R), Nilo\_86 (R), Papyrus\_82 (R), Riparian\_85 (R), Rope\_83 (R), Send513\_83 (R), Weiss13\_83 (R), Yelo\_82 (R), Zenon\_85 (R),

Start 22:

- Found in 25 of 97 ( 25.8% ) of genes in pham
- Manual Annotations of this start: 20 of 89
- Called 84.0% of time when present
- Phage (with cluster) where this start called: Adjutor\_68 (D1), BigMama\_68 (D1), Butterscotch\_68 (D1), Chill\_72 (D1), Delton\_70 (D1), Erk16\_70 (D1), Giuseppe\_72 (D1), Hawkeye\_82 (D2), Helpful\_73 (D1), KandZ\_68 (D1), Mopey\_72 (D1), Nova\_70 (D1), PLOT\_70 (D1), Penelope2018\_70 (D1), Phalaborwa\_73 (D1), Prager\_71 (D1), SirHarley\_72 (D1), SuperheroCarly\_70 (D1), Thoth\_70 (D1), Visconti\_71 (D1), WaldoWhy\_72 (D1),

Start 24:

- Found in 2 of 97 ( 2.1% ) of genes in pham
- Manual Annotations of this start: 2 of 89
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Leopard\_87 (AE), Onyinye\_87 (AE),

Start 27:

- Found in 4 of 97 ( 4.1% ) of genes in pham
- Manual Annotations of this start: 3 of 89
- Called 75.0% of time when present
- Phage (with cluster) where this start called: Cuke\_93 (AC), Fowlmouth\_91 (AC), MrMiyagi\_90 (AC),

Start 30:

- Found in 1 of 97 ( 1.0% ) of genes in pham

- Manual Annotations of this start: 1 of 89
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Indlulamithi\_82 (AC),

#### Start 31:

- Found in 37 of 97 ( 38.1% ) of genes in pham
- Manual Annotations of this start: 6 of 89
- Called 21.6% of time when present
- Phage (with cluster) where this start called: Apeppi\_81 (DV), Gallia\_53 (singleton), Lambo\_85 (DV), LuckyLeo\_83 (DV), OtterstedtS21\_86 (DV), P1201\_57 (singleton), Ranch\_89 (DV), Zany\_84 (DV),

#### Start 32:

- Found in 38 of 97 ( 39.2% ) of genes in pham
- Manual Annotations of this start: 30 of 89
- Called 89.5% of time when present
- Phage (with cluster) where this start called: Alyssamiracle\_86 (DV), Astralis\_83 (DV), Avian\_81 (DV), BirthdayBoy\_88 (DV), Charminar\_82 (DV), DaviePasture\_86 (DV), DoobyDoo\_85 (DV), DumpTruck\_88 (DV), Erutan\_85 (DV), Fulcrum\_84 (DV), GOATification\_84 (DV), Genamy16\_86 (DV), Gibbin\_87 (DV), GretelLyn\_85 (DV), Jalebi\_85 (DV), Jamemuya19\_81 (DV), LavAbarElk\_85 (DV), Lila22\_86 (DV), Mima20\_84 (DV), MoiGyank\_88 (DV), NorManre\_90 (DV), NovaSharks\_85 (DV), ParvusTarda\_85 (DV), Patos\_90 (DV), RazorC\_83 (DV), Riduram\_82 (DV), Rota\_84 (DV), Rukungu\_86 (DV), Rumi\_84 (DV), Sampudon\_87 (DV), Stormer\_85 (DV), Tillicus\_79 (DV), Wojtek\_78 (DV), Xenia2\_88 (DV),

#### Start 33:

- Found in 9 of 97 ( 9.3% ) of genes in pham
- Manual Annotations of this start: 9 of 89
- Called 100.0% of time when present
- Phage (with cluster) where this start called: C3PO\_42 (EN), Cruella\_42 (EN), Darwin\_46 (EN), Kimchi1738\_42 (EN), PeteyPab\_44 (EN), PotatoChip\_45 (EN), Predator\_79 (H1), StickyNote\_44 (EN), Zion\_45 (EN),

#### Start 36:

- Found in 21 of 97 ( 21.6% ) of genes in pham
- Manual Annotations of this start: 1 of 89
- Called 4.8% of time when present
- Phage (with cluster) where this start called: Troll4\_70 (D1),

#### Start 42:

- Found in 31 of 97 ( 32.0% ) of genes in pham
- Manual Annotations of this start: 3 of 89
- Called 12.9% of time when present
- Phage (with cluster) where this start called: Alephilan\_87 (DV), Pywacket\_82 (DV), Sadboi\_85 (DV), Yikes\_86 (DV),

### Summary by clusters:

There are 11 clusters represented in this pham: singleton, EN, AE, H1, AC, DG2, R, DV, DG1, D2, D1,

Info for manual annotations of cluster AC:

- Start number 27 was manually annotated 3 times for cluster AC.
- Start number 30 was manually annotated 1 time for cluster AC.

Info for manual annotations of cluster AE:

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

Info for manual annotations of cluster D1:

- Start number 22 was manually annotated 19 times for cluster D1.
- Start number 36 was manually annotated 1 time for cluster D1.

Info for manual annotations of cluster D2:

- Start number 22 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DG1:

- Start number 5 was manually annotated 2 times for cluster DG1.

Info for manual annotations of cluster DG2:

- Start number 11 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DV:

- Start number 31 was manually annotated 6 times for cluster DV.
- Start number 32 was manually annotated 30 times for cluster DV.
- Start number 42 was manually annotated 3 times for cluster DV.

Info for manual annotations of cluster EN:

- Start number 33 was manually annotated 8 times for cluster EN.

Info for manual annotations of cluster H1:

- Start number 33 was manually annotated 1 time for cluster H1.

Info for manual annotations of cluster R:

- Start number 21 was manually annotated 10 times for cluster R.

### **Gene Information:**

Gene: Adjutor\_68 Start: 54806, Stop: 55477, Start Num: 22

Candidate Starts for Adjutor\_68:

(Start: 22 @54806 has 20 MA's), (28, 54827), (Start: 36 @54857 has 1 MA's), (54, 54959), (56, 54965), (57, 54974), (65, 54998), (92, 55133), (93, 55136), (99, 55190), (116, 55307), (130, 55406),

Gene: Alephilan\_87 Start: 58613, Stop: 59248, Start Num: 42

Candidate Starts for Alephilan\_87:

(4, 58460), (6, 58475), (7, 58493), (15, 58514), (Start: 31 @58571 has 6 MA's), (Start: 32 @58574 has 30 MA's), (Start: 42 @58613 has 3 MA's), (71, 58766), (85, 58874), (91, 58910), (110, 59042), (112, 59057), (117, 59108),

Gene: Alyssamiracle\_86 Start: 56530, Stop: 57204, Start Num: 32

Candidate Starts for Alyssamiracle\_86:

(26, 56515), (Start: 31 @56527 has 6 MA's), (Start: 32 @56530 has 30 MA's), (Start: 42 @56569 has 3 MA's), (71, 56722), (73, 56749), (85, 56830), (91, 56866), (110, 56998), (112, 57013), (117, 57064),

Gene: Apeppi\_81 Start: 57772, Stop: 58446, Start Num: 31

Candidate Starts for Apeppi\_81:

(29, 57769), (Start: 31 @57772 has 6 MA's), (53, 57901), (71, 57964), (73, 57991), (85, 58072), (91, 58108), (99, 58168), (104, 58198), (110, 58240), (117, 58306), (122, 58348),

Gene: Astralis\_83 Start: 56109, Stop: 56783, Start Num: 32

Candidate Starts for Astralis\_83:

(26, 56094), (Start: 31 @56106 has 6 MA's), (Start: 32 @56109 has 30 MA's), (Start: 42 @56148 has 3 MA's), (71, 56301), (73, 56328), (85, 56409), (91, 56445), (110, 56577), (112, 56592), (117, 56643),

Gene: Avian\_81 Start: 56261, Stop: 56935, Start Num: 32

Candidate Starts for Avian\_81:

(26, 56246), (Start: 31 @56258 has 6 MA's), (Start: 32 @56261 has 30 MA's), (Start: 42 @56300 has 3 MA's), (71, 56453), (73, 56480), (85, 56561), (91, 56597), (110, 56729), (112, 56744), (117, 56795),

Gene: BigMama\_68 Start: 54879, Stop: 55550, Start Num: 22

Candidate Starts for BigMama\_68:

(Start: 22 @54879 has 20 MA's), (28, 54900), (Start: 36 @54930 has 1 MA's), (54, 55032), (56, 55038), (57, 55047), (65, 55071), (92, 55206), (93, 55209), (99, 55263), (116, 55380), (130, 55479),

Gene: BirthdayBoy\_88 Start: 58563, Stop: 59237, Start Num: 32

Candidate Starts for BirthdayBoy\_88:

(13, 58503), (19, 58527), (Start: 32 @58563 has 30 MA's), (Start: 42 @58602 has 3 MA's), (71, 58755), (85, 58863), (91, 58899), (104, 58989), (110, 59031), (117, 59097), (122, 59139),

Gene: Butterscotch\_68 Start: 54857, Stop: 55528, Start Num: 22

Candidate Starts for Butterscotch\_68:

(Start: 22 @54857 has 20 MA's), (28, 54878), (Start: 36 @54908 has 1 MA's), (54, 55010), (56, 55016), (57, 55025), (65, 55049), (92, 55184), (93, 55187), (99, 55241), (116, 55358), (130, 55457),

Gene: C3PO\_42 Start: 38653, Stop: 38066, Start Num: 33

Candidate Starts for C3PO\_42:

(Start: 33 @38653 has 9 MA's), (53, 38557), (54, 38554), (62, 38527), (64, 38515), (102, 38287), (122, 38122), (123, 38113), (124, 38110), (128, 38083),

Gene: Candle\_81 Start: 62723, Stop: 63430, Start Num: 21

Candidate Starts for Candle\_81:

(Start: 21 @62723 has 10 MA's), (34, 62774), (47, 62825), (53, 62894), (55, 62900), (61, 62930), (72, 62990), (87, 63038), (92, 63068), (93, 63071), (98, 63122), (99, 63131), (107, 63185), (115, 63242), (119, 63302), (120, 63305), (122, 63311), (127, 63353), (132, 63395),

Gene: Charminar\_82 Start: 55769, Stop: 56443, Start Num: 32

Candidate Starts for Charminar\_82:

(26, 55754), (Start: 31 @55766 has 6 MA's), (Start: 32 @55769 has 30 MA's), (Start: 42 @55808 has 3 MA's), (71, 55961), (73, 55988), (85, 56069), (91, 56105), (104, 56195), (110, 56237), (112, 56252), (117, 56303),

Gene: ChewyVIII\_69 Start: 49815, Stop: 49147, Start Num: 18

Candidate Starts for ChewyVIII\_69:

(16, 49818), (Start: 18 @49815 has 1 MA's), (39, 49728), (47, 49692), (50, 49665), (51, 49662), (54, 49623), (80, 49506), (83, 49491), (85, 49482), (90, 49458), (106, 49344), (107, 49332), (126, 49182), (131, 49152),

Gene: Chill\_72 Start: 54894, Stop: 55562, Start Num: 22

Candidate Starts for Chill\_72:

(Start: 22 @54894 has 20 MA's), (28, 54915), (Start: 36 @54945 has 1 MA's), (54, 55047), (56, 55053), (57, 55062), (65, 55086), (67, 55089), (92, 55221), (93, 55224), (99, 55278), (130, 55494),

Gene: Cruella\_42 Start: 38653, Stop: 38066, Start Num: 33

Candidate Starts for Cruella\_42:

(Start: 33 @38653 has 9 MA's), (53, 38557), (54, 38554), (62, 38527), (64, 38515), (102, 38287), (122, 38122), (123, 38113), (124, 38110), (128, 38083),

Gene: Cuke\_93 Start: 54589, Stop: 55197, Start Num: 27

Candidate Starts for Cuke\_93:

(Start: 21 @54562 has 10 MA's), (Start: 27 @54589 has 3 MA's), (38, 54625), (41, 54637), (44, 54646), (54, 54724), (55, 54727), (59, 54751), (66, 54781), (72, 54817), (78, 54838), (79, 54844), (82, 54847), (84, 54853), (86, 54865), (92, 54895), (95, 54913), (98, 54934), (105, 54979), (108, 55009), (110, 55018), (112, 55030), (117, 55081), (118, 55111), (120, 55117), (124, 55135), (128, 55162),

Gene: Darwin\_46 Start: 38531, Stop: 37944, Start Num: 33

Candidate Starts for Darwin\_46:

(Start: 33 @38531 has 9 MA's), (53, 38435), (54, 38432), (62, 38405), (64, 38393), (69, 38372), (102, 38165), (122, 38000), (123, 37991), (124, 37988), (128, 37961),

Gene: DaviePasture\_86 Start: 58094, Stop: 58768, Start Num: 32

Candidate Starts for DaviePasture\_86:

(1, 57935), (2, 57959), (Start: 5 @57989 has 2 MA's), (10, 58016), (Start: 22 @58061 has 20 MA's), (Start: 31 @58091 has 6 MA's), (Start: 32 @58094 has 30 MA's), (71, 58286), (73, 58313), (85, 58394), (91, 58430), (104, 58520), (110, 58562), (117, 58628), (122, 58670),

Gene: Delton\_70 Start: 55255, Stop: 55926, Start Num: 22

Candidate Starts for Delton\_70:

(Start: 22 @55255 has 20 MA's), (28, 55276), (Start: 36 @55306 has 1 MA's), (54, 55408), (56, 55414), (57, 55423), (65, 55447), (92, 55582), (93, 55585), (99, 55639), (116, 55756), (130, 55855),

Gene: DoobyDoo\_85 Start: 56890, Stop: 57564, Start Num: 32

Candidate Starts for DoobyDoo\_85:

(13, 56830), (19, 56854), (Start: 31 @56887 has 6 MA's), (Start: 32 @56890 has 30 MA's), (Start: 42 @56929 has 3 MA's), (71, 57082), (73, 57109), (85, 57190), (91, 57226), (110, 57358), (112, 57373), (117, 57424),

Gene: DumpTruck\_88 Start: 58077, Stop: 58757, Start Num: 32

Candidate Starts for DumpTruck\_88:

(Start: 32 @58077 has 30 MA's), (51, 58170), (58, 58230), (71, 58269), (83, 58368), (85, 58377), (97, 58461), (110, 58545), (117, 58611),

Gene: Erk16\_70 Start: 54972, Stop: 55640, Start Num: 22

Candidate Starts for Erk16\_70:

(Start: 22 @54972 has 20 MA's), (28, 54993), (Start: 36 @55023 has 1 MA's), (54, 55125), (56, 55131), (57, 55140), (65, 55164), (67, 55167), (92, 55299), (93, 55302), (99, 55356), (130, 55572),

Gene: Erutan\_85 Start: 58028, Stop: 58702, Start Num: 32

Candidate Starts for Erutan\_85:

(13, 57968), (19, 57992), (Start: 31 @58025 has 6 MA's), (Start: 32 @58028 has 30 MA's), (Start: 42 @58067 has 3 MA's), (71, 58220), (73, 58247), (85, 58328), (91, 58364), (97, 58412), (104, 58454),

(110, 58496), (117, 58562), (122, 58604),

Gene: Fowlmouth\_91 Start: 56536, Stop: 57147, Start Num: 27

Candidate Starts for Fowlmouth\_91:

(Start: 27 @56536 has 3 MA's), (38, 56572), (50, 56629), (74, 56776), (84, 56803), (86, 56815), (95, 56863), (98, 56884), (105, 56929), (108, 56959), (110, 56968), (112, 56980), (117, 57031), (120, 57067), (124, 57085), (128, 57112),

Gene: Fulcrum\_84 Start: 57717, Stop: 58391, Start Num: 32

Candidate Starts for Fulcrum\_84:

(13, 57657), (19, 57681), (Start: 32 @57717 has 30 MA's), (Start: 42 @57756 has 3 MA's), (71, 57909), (73, 57936), (85, 58017), (91, 58053), (104, 58143), (110, 58185), (117, 58251),

Gene: GOATification\_84 Start: 57717, Stop: 58391, Start Num: 32

Candidate Starts for GOATification\_84:

(13, 57657), (19, 57681), (Start: 32 @57717 has 30 MA's), (Start: 42 @57756 has 3 MA's), (71, 57909), (73, 57936), (85, 58017), (91, 58053), (104, 58143), (110, 58185), (117, 58251),

Gene: Gallia\_53 Start: 45252, Stop: 44584, Start Num: 31

Candidate Starts for Gallia\_53:

(Start: 31 @45252 has 6 MA's), (51, 45159), (63, 45078), (92, 44919), (103, 44832), (122, 44634), (125, 44622),

Gene: Genamy16\_86 Start: 56519, Stop: 57193, Start Num: 32

Candidate Starts for Genamy16\_86:

(26, 56504), (Start: 31 @56516 has 6 MA's), (Start: 32 @56519 has 30 MA's), (Start: 42 @56558 has 3 MA's), (71, 56711), (73, 56738), (85, 56819), (91, 56855), (110, 56987), (112, 57002), (117, 57053),

Gene: Gibbin\_87 Start: 58357, Stop: 59031, Start Num: 32

Candidate Starts for Gibbin\_87:

(4, 58243), (6, 58258), (7, 58276), (15, 58297), (Start: 31 @58354 has 6 MA's), (Start: 32 @58357 has 30 MA's), (Start: 42 @58396 has 3 MA's), (71, 58549), (73, 58576), (85, 58657), (91, 58693), (110, 58825), (112, 58840), (117, 58891),

Gene: Giuseppe\_72 Start: 54784, Stop: 55455, Start Num: 22

Candidate Starts for Giuseppe\_72:

(Start: 22 @54784 has 20 MA's), (28, 54805), (Start: 36 @54835 has 1 MA's), (54, 54937), (56, 54943), (57, 54952), (65, 54976), (92, 55111), (93, 55114), (99, 55168), (116, 55285), (130, 55384),

Gene: Gretellyn\_85 Start: 58084, Stop: 58758, Start Num: 32

Candidate Starts for Gretellyn\_85:

(4, 57970), (6, 57985), (7, 58003), (15, 58024), (Start: 31 @58081 has 6 MA's), (Start: 32 @58084 has 30 MA's), (Start: 42 @58123 has 3 MA's), (71, 58276), (73, 58303), (85, 58384), (91, 58420), (110, 58552), (112, 58567), (117, 58618),

Gene: Hawkeye\_82 Start: 56674, Stop: 57330, Start Num: 22

Candidate Starts for Hawkeye\_82:

(Start: 22 @56674 has 20 MA's), (25, 56686), (54, 56824), (56, 56830), (65, 56863), (83, 56950), (111, 57136), (117, 57193),

Gene: Helpful\_73 Start: 55172, Stop: 55843, Start Num: 22

Candidate Starts for Helpful\_73:

(Start: 22 @55172 has 20 MA's), (28, 55193), (Start: 36 @55223 has 1 MA's), (54, 55325), (56, 55331), (57, 55340), (65, 55364), (92, 55499), (93, 55502), (99, 55556), (116, 55673), (130, 55772),

Gene: Indlulamithi\_82 Start: 58260, Stop: 58847, Start Num: 30

Candidate Starts for Indlulamithi\_82:

(Start: 27 @58254 has 3 MA's), (Start: 30 @58260 has 1 MA's), (46, 58323), (50, 58344), (52, 58368), (55, 58389), (56, 58392), (71, 58452), (77, 58485), (110, 58674), (113, 58701), (115, 58710), (117, 58737), (120, 58773), (121, 58776), (124, 58791), (128, 58806),

Gene: Jalebi\_85 Start: 59002, Stop: 59676, Start Num: 32

Candidate Starts for Jalebi\_85:

(13, 58942), (19, 58966), (Start: 31 @58999 has 6 MA's), (Start: 32 @59002 has 30 MA's), (Start: 42 @59041 has 3 MA's), (71, 59194), (73, 59221), (85, 59302), (91, 59338), (104, 59428), (110, 59470), (117, 59536),

Gene: Jamemuya19\_81 Start: 56124, Stop: 56798, Start Num: 32

Candidate Starts for Jamemuya19\_81:

(26, 56109), (Start: 31 @56121 has 6 MA's), (Start: 32 @56124 has 30 MA's), (Start: 42 @56163 has 3 MA's), (71, 56316), (73, 56343), (85, 56424), (91, 56460), (110, 56592), (112, 56607), (117, 56658),

Gene: KandZ\_68 Start: 55001, Stop: 55672, Start Num: 22

Candidate Starts for KandZ\_68:

(Start: 22 @55001 has 20 MA's), (28, 55022), (Start: 36 @55052 has 1 MA's), (54, 55154), (56, 55160), (57, 55169), (65, 55193), (67, 55196), (92, 55328), (93, 55331), (99, 55385), (116, 55502), (130, 55601),

Gene: Kimchi1738\_42 Start: 37740, Stop: 37153, Start Num: 33

Candidate Starts for Kimchi1738\_42:

(Start: 33 @37740 has 9 MA's), (53, 37644), (54, 37641), (62, 37614), (64, 37602), (69, 37581), (102, 37374), (122, 37209), (123, 37200), (124, 37197), (128, 37170),

Gene: Lambo\_85 Start: 58114, Stop: 58788, Start Num: 31

Candidate Starts for Lambo\_85:

(29, 58111), (Start: 31 @58114 has 6 MA's), (71, 58306), (85, 58414), (91, 58450), (104, 58540), (110, 58582), (112, 58597), (117, 58648), (122, 58690),

Gene: LavAbarElk\_85 Start: 57175, Stop: 57849, Start Num: 32

Candidate Starts for LavAbarElk\_85:

(13, 57115), (19, 57139), (Start: 31 @57172 has 6 MA's), (Start: 32 @57175 has 30 MA's), (Start: 42 @57214 has 3 MA's), (71, 57367), (73, 57394), (85, 57475), (91, 57511), (104, 57601), (110, 57643), (117, 57709), (122, 57751),

Gene: Leopard\_87 Start: 61735, Stop: 62415, Start Num: 24

Candidate Starts for Leopard\_87:

(12, 61696), (23, 61732), (Start: 24 @61735 has 2 MA's), (29, 61753), (35, 61777), (72, 61966), (76, 61993), (83, 62044), (96, 62125), (100, 62155), (113, 62251), (116, 62266), (122, 62329), (133, 62398),

Gene: Lila22\_86 Start: 58477, Stop: 59151, Start Num: 32

Candidate Starts for Lila22\_86:

(13, 58417), (19, 58441), (Start: 31 @58474 has 6 MA's), (Start: 32 @58477 has 30 MA's), (Start: 42 @58516 has 3 MA's), (71, 58669), (73, 58696), (85, 58777), (91, 58813), (104, 58903), (110, 58945), (117, 59011), (122, 59053),

Gene: LilyPad\_77 Start: 54664, Stop: 55503, Start Num: 5

Candidate Starts for LilyPad\_77:

(Start: 5 @54664 has 2 MA's), (Start: 22 @54727 has 20 MA's), (28, 54751), (40, 54793), (45, 54808), (67, 54943), (68, 54955), (70, 54958), (96, 55144), (119, 55339), (134, 55447), (135, 55453),

Gene: LittleFella\_79 Start: 55168, Stop: 56049, Start Num: 11

Candidate Starts for LittleFella\_79:

(Start: 11 @55168 has 1 MA's), (17, 55186), (20, 55201), (28, 55237), (40, 55279), (53, 55369), (54, 55372), (67, 55426), (89, 55561), (114, 55759), (128, 55870), (129, 55876), (137, 55951), (138, 55969),

Gene: LuckyLeo\_83 Start: 57772, Stop: 58446, Start Num: 31

Candidate Starts for LuckyLeo\_83:

(29, 57769), (Start: 31 @57772 has 6 MA's), (53, 57901), (71, 57964), (73, 57991), (85, 58072), (91, 58108), (99, 58168), (104, 58198), (110, 58240), (117, 58306), (122, 58348),

Gene: Madi\_79 Start: 55533, Stop: 56354, Start Num: 5

Candidate Starts for Madi\_79:

(3, 55518), (Start: 5 @55533 has 2 MA's), (Start: 22 @55605 has 20 MA's), (28, 55629), (40, 55671), (50, 55725), (56, 55773), (60, 55797), (67, 55821), (68, 55833), (70, 55836), (96, 56022), (134, 56325),

Gene: Mima20\_84 Start: 57809, Stop: 58483, Start Num: 32

Candidate Starts for Mima20\_84:

(26, 57794), (Start: 31 @57806 has 6 MA's), (Start: 32 @57809 has 30 MA's), (Start: 42 @57848 has 3 MA's), (71, 58001), (73, 58028), (85, 58109), (91, 58145), (104, 58235), (110, 58277), (117, 58343),

Gene: MoiGyank\_88 Start: 58408, Stop: 59082, Start Num: 32

Candidate Starts for MoiGyank\_88:

(Start: 31 @58405 has 6 MA's), (Start: 32 @58408 has 30 MA's), (Start: 42 @58447 has 3 MA's), (71, 58600), (73, 58627), (85, 58708), (91, 58744), (104, 58834), (110, 58876), (117, 58942),

Gene: MontyDev\_85 Start: 62366, Stop: 63073, Start Num: 21

Candidate Starts for MontyDev\_85:

(Start: 21 @62366 has 10 MA's), (34, 62417), (47, 62468), (53, 62537), (55, 62543), (61, 62573), (72, 62633), (87, 62681), (92, 62711), (93, 62714), (98, 62765), (99, 62774), (107, 62828), (115, 62885), (119, 62945), (120, 62948), (122, 62954), (127, 62996), (132, 63038),

Gene: Mopey\_72 Start: 54810, Stop: 55481, Start Num: 22

Candidate Starts for Mopey\_72:

(Start: 22 @54810 has 20 MA's), (28, 54831), (Start: 36 @54861 has 1 MA's), (54, 54963), (56, 54969), (57, 54978), (65, 55002), (92, 55137), (93, 55140), (99, 55194), (116, 55311), (130, 55410),

Gene: MrMiyagi\_90 Start: 56804, Stop: 57415, Start Num: 27

Candidate Starts for MrMiyagi\_90:

(Start: 27 @56804 has 3 MA's), (38, 56840), (50, 56897), (70, 57011), (74, 57044), (84, 57071), (95, 57131), (98, 57152), (105, 57197), (108, 57227), (110, 57236), (112, 57248), (117, 57299), (120, 57335), (124, 57353), (128, 57380),

Gene: Nilo\_86 Start: 62725, Stop: 63432, Start Num: 21

Candidate Starts for Nilo\_86:

(Start: 21 @62725 has 10 MA's), (34, 62776), (47, 62827), (53, 62896), (55, 62902), (61, 62932), (72, 62992), (87, 63040), (92, 63070), (93, 63073), (98, 63124), (99, 63133), (107, 63187), (115, 63244),

(119, 63304), (120, 63307), (122, 63313), (127, 63355), (132, 63397),

Gene: NorManre\_90 Start: 59321, Stop: 59995, Start Num: 32

Candidate Starts for NorManre\_90:

(14, 59261), (19, 59285), (Start: 32 @59321 has 30 MA's), (71, 59513), (85, 59621), (91, 59657), (104, 59747), (110, 59789), (117, 59855), (122, 59897),

Gene: Nova\_70 Start: 55349, Stop: 56020, Start Num: 22

Candidate Starts for Nova\_70:

(Start: 22 @55349 has 20 MA's), (28, 55370), (Start: 36 @55400 has 1 MA's), (54, 55502), (56, 55508), (57, 55517), (65, 55541), (92, 55676), (93, 55679), (99, 55733), (116, 55850), (130, 55949),

Gene: NovaSharks\_85 Start: 56222, Stop: 56896, Start Num: 32

Candidate Starts for NovaSharks\_85:

(26, 56207), (Start: 31 @56219 has 6 MA's), (Start: 32 @56222 has 30 MA's), (Start: 42 @56261 has 3 MA's), (71, 56414), (73, 56441), (85, 56522), (91, 56558), (110, 56690), (112, 56705), (117, 56756),

Gene: Onyinye\_87 Start: 61230, Stop: 61910, Start Num: 24

Candidate Starts for Onyinye\_87:

(12, 61191), (23, 61227), (Start: 24 @61230 has 2 MA's), (29, 61248), (35, 61272), (72, 61461), (76, 61488), (83, 61539), (96, 61620), (100, 61650), (113, 61746), (116, 61761), (122, 61824), (133, 61893),

Gene: OtterstedtS21\_86 Start: 58125, Stop: 58799, Start Num: 31

Candidate Starts for OtterstedtS21\_86:

(13, 58068), (19, 58092), (29, 58122), (Start: 31 @58125 has 6 MA's), (Start: 42 @58164 has 3 MA's), (71, 58317), (73, 58344), (85, 58425), (91, 58461), (104, 58551), (110, 58593), (112, 58608), (117, 58659), (122, 58701),

Gene: P1201\_57 Start: 44915, Stop: 44262, Start Num: 31

Candidate Starts for P1201\_57:

(Start: 31 @44915 has 6 MA's), (63, 44756), (75, 44690), (103, 44510), (122, 44312), (125, 44300),

Gene: PLOT\_70 Start: 54810, Stop: 55481, Start Num: 22

Candidate Starts for PLOT\_70:

(Start: 22 @54810 has 20 MA's), (28, 54831), (Start: 36 @54861 has 1 MA's), (54, 54963), (56, 54969), (57, 54978), (65, 55002), (67, 55005), (92, 55137), (93, 55140), (99, 55194), (116, 55311), (130, 55410),

Gene: Papyrus\_82 Start: 61384, Stop: 62091, Start Num: 21

Candidate Starts for Papyrus\_82:

(Start: 21 @61384 has 10 MA's), (34, 61435), (47, 61486), (53, 61555), (55, 61561), (61, 61591), (72, 61651), (87, 61699), (92, 61729), (93, 61732), (98, 61783), (99, 61792), (107, 61846), (115, 61903), (119, 61963), (120, 61966), (122, 61972), (127, 62014), (132, 62056),

Gene: ParvusTarda\_85 Start: 57398, Stop: 58072, Start Num: 32

Candidate Starts for ParvusTarda\_85:

(13, 57338), (19, 57362), (Start: 31 @57395 has 6 MA's), (Start: 32 @57398 has 30 MA's), (Start: 42 @57437 has 3 MA's), (71, 57590), (73, 57617), (85, 57698), (91, 57734), (104, 57824), (110, 57866), (112, 57881), (117, 57932), (122, 57974),

Gene: Patos\_90 Start: 59320, Stop: 59994, Start Num: 32

Candidate Starts for Patos\_90:

(14, 59260), (19, 59284), (Start: 32 @59320 has 30 MA's), (71, 59512), (85, 59620), (91, 59656), (104, 59746), (110, 59788), (117, 59854), (122, 59896),

Gene: Penelope2018\_70 Start: 54844, Stop: 55515, Start Num: 22

Candidate Starts for Penelope2018\_70:

(Start: 22 @54844 has 20 MA's), (28, 54865), (Start: 36 @54895 has 1 MA's), (54, 54997), (56, 55003), (57, 55012), (65, 55036), (92, 55171), (93, 55174), (99, 55228), (116, 55345), (130, 55444),

Gene: PeteyPab\_44 Start: 39498, Stop: 38911, Start Num: 33

Candidate Starts for PeteyPab\_44:

(Start: 33 @39498 has 9 MA's), (53, 39402), (54, 39399), (62, 39372), (64, 39360), (69, 39339), (102, 39132), (122, 38967), (123, 38958), (124, 38955), (128, 38928),

Gene: Phalaborwa\_73 Start: 55437, Stop: 56108, Start Num: 22

Candidate Starts for Phalaborwa\_73:

(Start: 22 @55437 has 20 MA's), (28, 55458), (Start: 36 @55488 has 1 MA's), (54, 55590), (56, 55596), (65, 55629), (67, 55632), (92, 55764), (93, 55767), (94, 55779), (99, 55821), (104, 55851), (130, 56037),

Gene: PotatoChip\_45 Start: 39500, Stop: 38913, Start Num: 33

Candidate Starts for PotatoChip\_45:

(Start: 33 @39500 has 9 MA's), (53, 39404), (54, 39401), (62, 39374), (64, 39362), (69, 39341), (102, 39134), (122, 38969), (123, 38960), (124, 38957), (128, 38930),

Gene: Prager\_71 Start: 54904, Stop: 55575, Start Num: 22

Candidate Starts for Prager\_71:

(Start: 22 @54904 has 20 MA's), (28, 54925), (Start: 36 @54955 has 1 MA's), (54, 55057), (56, 55063), (57, 55072), (65, 55096), (92, 55231), (93, 55234), (99, 55288), (116, 55405), (130, 55504),

Gene: Predator\_79 Start: 59366, Stop: 60121, Start Num: 33

Candidate Starts for Predator\_79:

(9, 59273), (Start: 33 @59366 has 9 MA's), (43, 59396), (48, 59435), (67, 59543), (81, 59660), (85, 59675), (88, 59684), (91, 59714), (101, 59783), (109, 59873), (112, 59891), (136, 60092),

Gene: Pywacket\_82 Start: 58303, Stop: 58938, Start Num: 42

Candidate Starts for Pywacket\_82:

(13, 58204), (19, 58228), (Start: 31 @58261 has 6 MA's), (Start: 32 @58264 has 30 MA's), (37, 58288), (Start: 42 @58303 has 3 MA's), (71, 58456), (73, 58483), (85, 58564), (91, 58600), (97, 58648), (104, 58690), (110, 58732), (112, 58747), (117, 58798), (122, 58840),

Gene: Ranch\_89 Start: 57797, Stop: 58471, Start Num: 31

Candidate Starts for Ranch\_89:

(29, 57794), (Start: 31 @57797 has 6 MA's), (49, 57881), (71, 57989), (85, 58097), (91, 58133), (104, 58223), (110, 58265), (117, 58331),

Gene: RazorC\_83 Start: 56264, Stop: 56938, Start Num: 32

Candidate Starts for RazorC\_83:

(26, 56249), (Start: 31 @56261 has 6 MA's), (Start: 32 @56264 has 30 MA's), (Start: 42 @56303 has 3 MA's), (71, 56456), (73, 56483), (85, 56564), (91, 56600), (110, 56732), (112, 56747), (117, 56798),

Gene: Riduram\_82 Start: 55839, Stop: 56513, Start Num: 32

Candidate Starts for Riduram\_82:

(26, 55824), (Start: 31 @55836 has 6 MA's), (Start: 32 @55839 has 30 MA's), (Start: 42 @55878 has 3 MA's), (71, 56031), (73, 56058), (85, 56139), (91, 56175), (110, 56307), (112, 56322), (117, 56373),

Gene: Riparian\_85 Start: 62171, Stop: 62878, Start Num: 21

Candidate Starts for Riparian\_85:

(Start: 21 @62171 has 10 MA's), (34, 62222), (47, 62273), (53, 62342), (55, 62348), (61, 62378), (72, 62438), (87, 62486), (92, 62516), (93, 62519), (98, 62570), (99, 62579), (107, 62633), (115, 62690), (119, 62750), (120, 62753), (122, 62759), (127, 62801), (132, 62843),

Gene: Rope\_83 Start: 62330, Stop: 63037, Start Num: 21

Candidate Starts for Rope\_83:

(Start: 21 @62330 has 10 MA's), (34, 62381), (47, 62432), (53, 62501), (55, 62507), (56, 62510), (61, 62537), (72, 62597), (87, 62645), (92, 62675), (93, 62678), (98, 62729), (99, 62738), (107, 62792), (115, 62849), (119, 62909), (120, 62912), (122, 62918), (127, 62960), (132, 63002),

Gene: Rota\_84 Start: 58231, Stop: 58905, Start Num: 32

Candidate Starts for Rota\_84:

(4, 58117), (6, 58132), (7, 58150), (15, 58171), (Start: 31 @58228 has 6 MA's), (Start: 32 @58231 has 30 MA's), (Start: 42 @58270 has 3 MA's), (71, 58423), (85, 58531), (91, 58567), (97, 58615), (104, 58657), (110, 58699), (117, 58765), (122, 58807),

Gene: Rukungu\_86 Start: 58585, Stop: 59259, Start Num: 32

Candidate Starts for Rukungu\_86:

(26, 58570), (Start: 31 @58582 has 6 MA's), (Start: 32 @58585 has 30 MA's), (Start: 42 @58624 has 3 MA's), (71, 58777), (73, 58804), (85, 58885), (91, 58921), (104, 59011), (110, 59053), (117, 59119), (122, 59161),

Gene: Rumi\_84 Start: 55807, Stop: 56481, Start Num: 32

Candidate Starts for Rumi\_84:

(26, 55792), (Start: 31 @55804 has 6 MA's), (Start: 32 @55807 has 30 MA's), (Start: 42 @55846 has 3 MA's), (71, 55999), (73, 56026), (85, 56107), (91, 56143), (110, 56275), (112, 56290), (117, 56341),

Gene: Sadboi\_85 Start: 58124, Stop: 58759, Start Num: 42

Candidate Starts for Sadboi\_85:

(4, 57971), (6, 57986), (7, 58004), (15, 58025), (Start: 31 @58082 has 6 MA's), (Start: 32 @58085 has 30 MA's), (Start: 42 @58124 has 3 MA's), (71, 58277), (85, 58385), (91, 58421), (104, 58511), (110, 58553), (117, 58619), (122, 58661),

Gene: Sampudon\_87 Start: 59002, Stop: 59676, Start Num: 32

Candidate Starts for Sampudon\_87:

(13, 58942), (19, 58966), (Start: 31 @58999 has 6 MA's), (Start: 32 @59002 has 30 MA's), (Start: 42 @59041 has 3 MA's), (71, 59194), (73, 59221), (85, 59302), (91, 59338), (104, 59428), (110, 59470), (117, 59536),

Gene: Send513\_83 Start: 62707, Stop: 63414, Start Num: 21

Candidate Starts for Send513\_83:

(Start: 21 @62707 has 10 MA's), (34, 62758), (47, 62809), (53, 62878), (55, 62884), (56, 62887), (61, 62914), (72, 62974), (87, 63022), (92, 63052), (93, 63055), (98, 63106), (99, 63115), (107, 63169), (115, 63226), (119, 63286), (120, 63289), (122, 63295), (127, 63337), (132, 63379),

Gene: SirHarley\_72 Start: 55309, Stop: 55980, Start Num: 22

Candidate Starts for SirHarley\_72:

(Start: 22 @55309 has 20 MA's), (28, 55330), (Start: 36 @55360 has 1 MA's), (54, 55462), (56, 55468), (57, 55477), (65, 55501), (92, 55636), (93, 55639), (99, 55693), (116, 55810), (130, 55909),

Gene: Stickynote\_44 Start: 38920, Stop: 38333, Start Num: 33

Candidate Starts for Stickynote\_44:

(Start: 33 @38920 has 9 MA's), (53, 38824), (54, 38821), (62, 38794), (64, 38782), (69, 38761), (102, 38554), (122, 38389), (124, 38377), (128, 38350),

Gene: Stormer\_85 Start: 55949, Stop: 56623, Start Num: 32

Candidate Starts for Stormer\_85:

(8, 55877), (12, 55886), (14, 55889), (19, 55913), (Start: 32 @55949 has 30 MA's), (71, 56141), (73, 56168), (85, 56249), (91, 56285), (104, 56375), (110, 56417), (112, 56432), (117, 56483),

Gene: SuperheroCarly\_70 Start: 54992, Stop: 55663, Start Num: 22

Candidate Starts for SuperheroCarly\_70:

(Start: 22 @54992 has 20 MA's), (28, 55013), (Start: 36 @55043 has 1 MA's), (54, 55145), (56, 55151), (57, 55160), (65, 55184), (92, 55319), (93, 55322), (99, 55376), (116, 55493), (130, 55592),

Gene: Thoth\_70 Start: 54898, Stop: 55569, Start Num: 22

Candidate Starts for Thoth\_70:

(Start: 22 @54898 has 20 MA's), (28, 54919), (Start: 36 @54949 has 1 MA's), (54, 55051), (56, 55057), (57, 55066), (65, 55090), (92, 55225), (93, 55228), (99, 55282), (116, 55399), (130, 55498),

Gene: Tillicus\_79 Start: 57502, Stop: 58176, Start Num: 32

Candidate Starts for Tillicus\_79:

(4, 57388), (6, 57403), (7, 57421), (15, 57442), (Start: 31 @57499 has 6 MA's), (Start: 32 @57502 has 30 MA's), (71, 57694), (73, 57721), (85, 57802), (91, 57838), (99, 57898), (104, 57928), (110, 57970), (117, 58036), (122, 58078),

Gene: Troll4\_70 Start: 55017, Stop: 55637, Start Num: 36

Candidate Starts for Troll4\_70:

(Start: 22 @54966 has 20 MA's), (28, 54987), (Start: 36 @55017 has 1 MA's), (54, 55119), (56, 55125), (57, 55134), (65, 55158), (92, 55293), (93, 55296), (99, 55350), (116, 55467), (130, 55566),

Gene: Visconti\_71 Start: 54874, Stop: 55545, Start Num: 22

Candidate Starts for Visconti\_71:

(Start: 22 @54874 has 20 MA's), (28, 54895), (Start: 36 @54925 has 1 MA's), (54, 55027), (56, 55033), (57, 55042), (65, 55066), (92, 55201), (93, 55204), (99, 55258), (116, 55375), (130, 55474),

Gene: WaldoWhy\_72 Start: 54894, Stop: 55562, Start Num: 22

Candidate Starts for WaldoWhy\_72:

(Start: 22 @54894 has 20 MA's), (28, 54915), (Start: 36 @54945 has 1 MA's), (54, 55047), (56, 55053), (57, 55062), (65, 55086), (67, 55089), (92, 55221), (93, 55224), (99, 55278), (130, 55494),

Gene: Weiss13\_83 Start: 62408, Stop: 63115, Start Num: 21

Candidate Starts for Weiss13\_83:

(Start: 21 @62408 has 10 MA's), (34, 62459), (47, 62510), (53, 62579), (55, 62585), (61, 62615), (72, 62675), (87, 62723), (92, 62753), (93, 62756), (98, 62807), (99, 62816), (107, 62870), (115, 62927), (119, 62987), (120, 62990), (122, 62996), (127, 63038), (132, 63080),

Gene: Wojtek\_78 Start: 58104, Stop: 58778, Start Num: 32

Candidate Starts for Wojtek\_78:

(14, 58044), (19, 58068), (Start: 32 @58104 has 30 MA's), (71, 58296), (85, 58404), (91, 58440), (104, 58530), (110, 58572), (112, 58587), (117, 58638), (122, 58680),

Gene: Xenia2\_88 Start: 58445, Stop: 59125, Start Num: 32

Candidate Starts for Xenia2\_88:

(Start: 32 @58445 has 30 MA's), (51, 58538), (58, 58598), (71, 58637), (83, 58736), (85, 58745), (97, 58829), (110, 58913), (117, 58979),

Gene: Yelo\_82 Start: 62763, Stop: 63470, Start Num: 21

Candidate Starts for Yelo\_82:

(Start: 21 @62763 has 10 MA's), (34, 62814), (47, 62865), (53, 62934), (55, 62940), (61, 62970), (72, 63030), (87, 63078), (92, 63108), (93, 63111), (98, 63162), (99, 63171), (107, 63225), (115, 63282), (119, 63342), (120, 63345), (122, 63351), (127, 63393), (132, 63435),

Gene: Yikes\_86 Start: 58672, Stop: 59307, Start Num: 42

Candidate Starts for Yikes\_86:

(4, 58519), (6, 58534), (7, 58552), (15, 58573), (Start: 31 @58630 has 6 MA's), (Start: 32 @58633 has 30 MA's), (Start: 42 @58672 has 3 MA's), (71, 58825), (73, 58852), (85, 58933), (91, 58969), (110, 59101), (112, 59116), (117, 59167),

Gene: Zany\_84 Start: 58887, Stop: 59561, Start Num: 31

Candidate Starts for Zany\_84:

(29, 58884), (Start: 31 @58887 has 6 MA's), (71, 59079), (73, 59106), (85, 59187), (91, 59223), (110, 59355), (112, 59370), (117, 59421), (122, 59463),

Gene: Zenon\_85 Start: 62734, Stop: 63441, Start Num: 21

Candidate Starts for Zenon\_85:

(Start: 21 @62734 has 10 MA's), (34, 62785), (47, 62836), (53, 62905), (55, 62911), (61, 62941), (72, 63001), (87, 63049), (92, 63079), (93, 63082), (98, 63133), (99, 63142), (107, 63196), (115, 63253), (119, 63313), (120, 63316), (122, 63322), (127, 63364), (132, 63406),

Gene: Zion\_45 Start: 39498, Stop: 38911, Start Num: 33

Candidate Starts for Zion\_45:

(Start: 33 @39498 has 9 MA's), (53, 39402), (54, 39399), (62, 39372), (64, 39360), (69, 39339), (102, 39132), (122, 38967), (123, 38958), (124, 38955), (128, 38928),