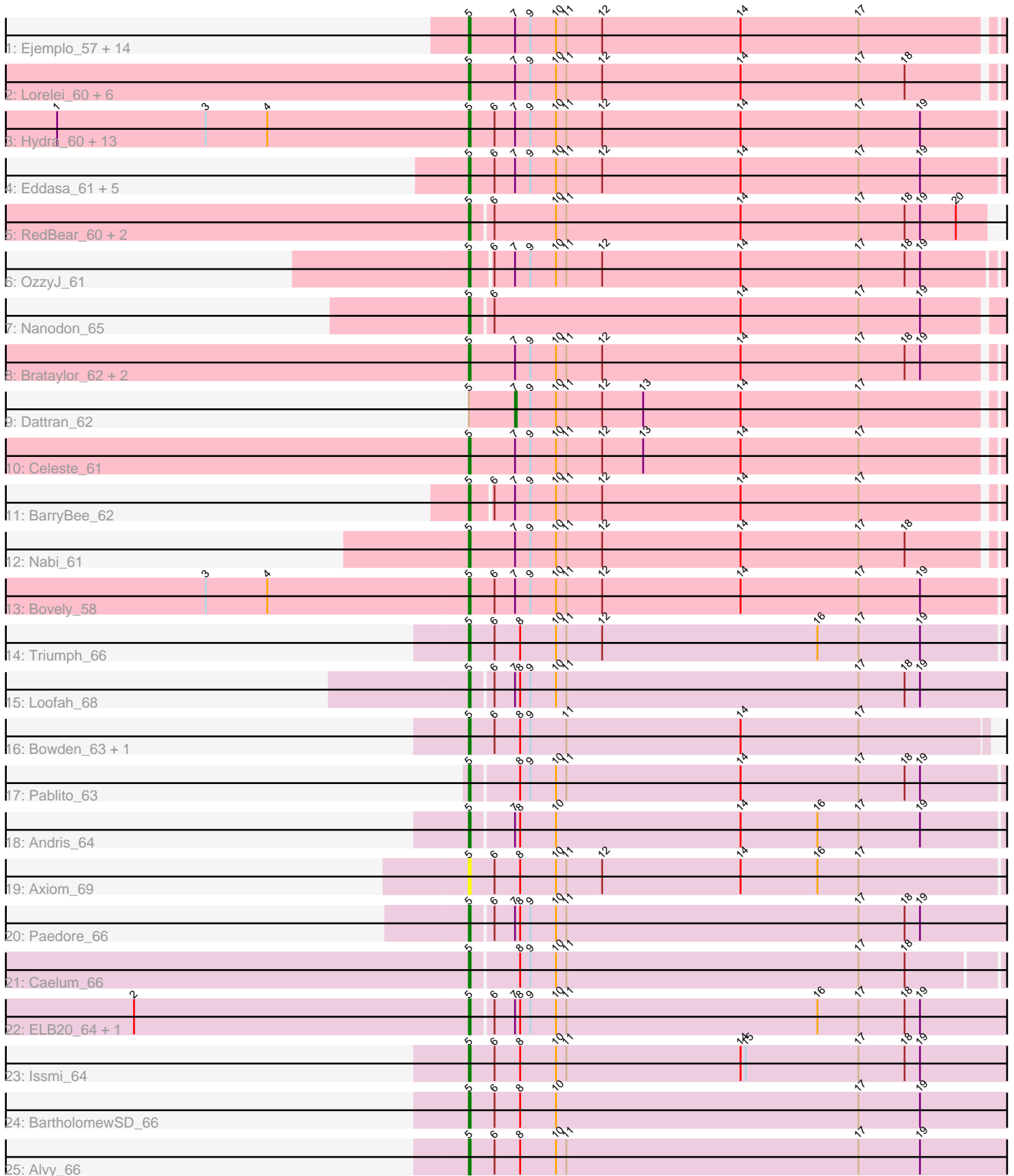


# Pham 223116



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 223116 Report

This analysis was run 03/28/25 on database version 593.

Pham number 223116 has 69 members, 2 are drafts.

Phages represented in each track:

- Track 1 : Ejemplo\_57, Yasdnil\_59, Emaanora\_62, Snorlax\_59, Whatever\_59, Dwayne\_59, Triste\_60, Maneekul\_59, Chucky\_59, Asten\_59, Hippo\_59, TagePhighter\_61, SarahRose\_59, TuanPN\_57, Werner\_59
- Track 2 : Lorelei\_60, Godpower\_61, Lika\_60, Rana\_61, Goby\_61, Sujidade\_61, Toma\_61
- Track 3 : Hydra\_60, Nerdos\_57, Esperer\_59, BeardedLady\_58, Phettuccine\_58, Leviticus\_59, EnochSoames\_62, Aaronocolus\_58, Caliburn\_57, Ozzie\_57, Unstoppable\_58, Legacy\_57, Indigo\_57, SunsetPointe\_57
- Track 4 : Eddasa\_61, Izzy\_60, Jash\_60, Oliynyk\_60, Rusticus\_60, BryanRecycles\_60
- Track 5 : RedBear\_60, Katalie\_59, South40\_59
- Track 6 : OzzyJ\_61
- Track 7 : Nanodon\_65
- Track 8 : Brataylor\_62, Danzina\_61, Zemlya\_61
- Track 9 : Dattran\_62
- Track 10 : Celeste\_61
- Track 11 : BarryBee\_62
- Track 12 : Nabi\_61
- Track 13 : Bovely\_58
- Track 14 : Triumph\_66
- Track 15 : Loofah\_68
- Track 16 : Bowden\_63, TrvxScott\_62
- Track 17 : Pablito\_63
- Track 18 : Andris\_64
- Track 19 : Axiom\_69
- Track 20 : Paedore\_66
- Track 21 : Caelum\_66
- Track 22 : ELB20\_64, R4\_65
- Track 23 : Issmi\_64
- Track 24 : BartholomewSD\_66
- Track 25 : Alvy\_66

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

The start number called the most often in the published annotations is 5, it was called in 66 of the 67 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aaronocolus\_58, Alvy\_66, Andris\_64, Asten\_59, Axiom\_69, BarryBee\_62, BartholomewSD\_66, BeardedLady\_58, Bovely\_58, Bowden\_63, Brataylor\_62, BryanRecycles\_60, Caelum\_66, Caliburn\_57, Celeste\_61, Chucky\_59, Danzina\_61, Dwayne\_59, ELB20\_64, Eddasa\_61, Ejemplo\_57, Emaanora\_62, EnochSoames\_62, Esperer\_59, Goby\_61, Godpower\_61, Hippo\_59, Hydra\_60, Indigo\_57, Issmi\_64, Izzy\_60, Jash\_60, Katalie\_59, Legacy\_57, Leviticus\_59, Lika\_60, Loofah\_68, Lorelei\_60, Maneekul\_59, Nabi\_61, Nanodon\_65, Nerdos\_57, Oliynyk\_60, Ozzie\_57, OzzyJ\_61, Pablito\_63, Paedore\_66, Phettuccine\_58, R4\_65, Rana\_61, RedBear\_60, Rusticus\_60, SarahRose\_59, Snorlax\_59, South40\_59, Sujidade\_61, SunsetPointe\_57, TagePhighter\_61, Toma\_61, Triste\_60, Triumph\_66, TrvxScott\_62, TuanPN\_57, Unstoppable\_58, Werner\_59, Whatever\_59, Yasdnil\_59, Zemlya\_61,

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

- Dattran\_62,

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

- 

### Summary by start number:

Start 5:

- Found in 69 of 69 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 66 of 67
- Called 98.6% of time when present
- Phage (with cluster) where this start called: Aaronocolus\_58 (BD1), Alvy\_66 (BD2), Andris\_64 (BD2), Asten\_59 (BD1), Axiom\_69 (BD2), BarryBee\_62 (BD1), BartholomewSD\_66 (BD2), BeardedLady\_58 (BD1), Bovely\_58 (BD1), Bowden\_63 (BD2), Brataylor\_62 (BD1), BryanRecycles\_60 (BD1), Caelum\_66 (BD2), Caliburn\_57 (BD1), Celeste\_61 (BD1), Chucky\_59 (BD1), Danzina\_61 (BD1), Dwayne\_59 (BD1), ELB20\_64 (BD2), Eddasa\_61 (BD1), Ejemplo\_57 (BD1), Emaanora\_62 (BD1), EnochSoames\_62 (BD1), Esperer\_59 (BD1), Goby\_61 (BD1), Godpower\_61 (BD1), Hippo\_59 (BD1), Hydra\_60 (BD1), Indigo\_57 (BD1), Issmi\_64 (BD2), Izzy\_60 (BD1), Jash\_60 (BD1), Katalie\_59 (BD1), Legacy\_57 (BD1), Leviticus\_59 (BD1), Lika\_60 (BD1), Loofah\_68 (BD2), Lorelei\_60 (BD1), Maneekul\_59 (BD1), Nabi\_61 (BD1), Nanodon\_65 (BD1), Nerdos\_57 (BD1), Oliynyk\_60 (BD1), Ozzie\_57 (BD1), OzzyJ\_61 (BD1), Pablito\_63 (BD2), Paedore\_66 (BD2), Phettuccine\_58 (BD1), R4\_65 (BD2), Rana\_61 (BD1), RedBear\_60 (BD1), Rusticus\_60 (BD1), SarahRose\_59 (BD1), Snorlax\_59 (BD1), South40\_59 (BD1), Sujidade\_61 (BD1), SunsetPointe\_57 (BD1), TagePhighter\_61 (BD1), Toma\_61 (BD1), Triste\_60 (BD1), Triumph\_66 (BD2), TrvxScott\_62 (BD2), TuanPN\_57 (BD1), Unstoppable\_58 (BD1), Werner\_59 (BD1), Whatever\_59 (BD1), Yasdnil\_59 (BD1), Zemlya\_61 (BD1),

Start 7:

- Found in 56 of 69 ( 81.2% ) of genes in pham
- Manual Annotations of this start: 1 of 67
- Called 1.8% of time when present
- Phage (with cluster) where this start called: Dattran\_62 (BD1),

### Summary by clusters:

There are 2 clusters represented in this pham: BD1, BD2,

Info for manual annotations of cluster BD1:

- Start number 5 was manually annotated 53 times for cluster BD1.
- Start number 7 was manually annotated 1 time for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 5 was manually annotated 13 times for cluster BD2.

### **Gene Information:**

Gene: Aaronocolus\_58 Start: 42308, Stop: 41997, Start Num: 5

Candidate Starts for Aaronocolus\_58:

(1, 42548), (3, 42461), (4, 42425), (Start: 5 @42308 has 66 MA's), (6, 42293), (Start: 7 @42281 has 1 MA's), (9, 42272), (10, 42257), (11, 42251), (12, 42230), (14, 42149), (17, 42080), (19, 42044),

Gene: Alvy\_66 Start: 44023, Stop: 43709, Start Num: 5

Candidate Starts for Alvy\_66:

(Start: 5 @44023 has 66 MA's), (6, 44008), (8, 43993), (10, 43972), (11, 43966), (17, 43795), (19, 43759),

Gene: Andris\_64 Start: 43035, Stop: 42727, Start Num: 5

Candidate Starts for Andris\_64:

(Start: 5 @43035 has 66 MA's), (Start: 7 @43011 has 1 MA's), (8, 43008), (10, 42987), (14, 42879), (16, 42834), (17, 42810), (19, 42774),

Gene: Asten\_59 Start: 44559, Stop: 44254, Start Num: 5

Candidate Starts for Asten\_59:

(Start: 5 @44559 has 66 MA's), (Start: 7 @44532 has 1 MA's), (9, 44523), (10, 44508), (11, 44502), (12, 44481), (14, 44400), (17, 44331),

Gene: Axiom\_69 Start: 43396, Stop: 43085, Start Num: 5

Candidate Starts for Axiom\_69:

(Start: 5 @43396 has 66 MA's), (6, 43381), (8, 43366), (10, 43345), (11, 43339), (12, 43318), (14, 43237), (16, 43192), (17, 43168),

Gene: BarryBee\_62 Start: 44578, Stop: 44276, Start Num: 5

Candidate Starts for BarryBee\_62:

(Start: 5 @44578 has 66 MA's), (6, 44566), (Start: 7 @44554 has 1 MA's), (9, 44545), (10, 44530), (11, 44524), (12, 44503), (14, 44422), (17, 44353),

Gene: BartholomewSD\_66 Start: 43142, Stop: 42828, Start Num: 5

Candidate Starts for BartholomewSD\_66:

(Start: 5 @43142 has 66 MA's), (6, 43127), (8, 43112), (10, 43091), (17, 42914), (19, 42878),

Gene: BeardedLady\_58 Start: 42682, Stop: 42371, Start Num: 5

Candidate Starts for BeardedLady\_58:

(1, 42922), (3, 42835), (4, 42799), (Start: 5 @42682 has 66 MA's), (6, 42667), (Start: 7 @42655 has 1 MA's), (9, 42646), (10, 42631), (11, 42625), (12, 42604), (14, 42523), (17, 42454), (19, 42418),

Gene: Bovely\_58 Start: 42311, Stop: 42000, Start Num: 5

Candidate Starts for Bovely\_58:

(3, 42464), (4, 42428), (Start: 5 @42311 has 66 MA's), (6, 42296), (Start: 7 @42284 has 1 MA's), (9, 42275), (10, 42260), (11, 42254), (12, 42233), (14, 42152), (17, 42083), (19, 42047),

Gene: Bowden\_63 Start: 43978, Stop: 43676, Start Num: 5

Candidate Starts for Bowden\_63:

(Start: 5 @43978 has 66 MA's), (6, 43963), (8, 43948), (9, 43942), (11, 43921), (14, 43819), (17, 43750),

Gene: Brataylor\_62 Start: 44124, Stop: 43819, Start Num: 5

Candidate Starts for Brataylor\_62:

(Start: 5 @44124 has 66 MA's), (Start: 7 @44097 has 1 MA's), (9, 44088), (10, 44073), (11, 44067), (12, 44046), (14, 43965), (17, 43896), (18, 43869), (19, 43860),

Gene: BryanRecycles\_60 Start: 42798, Stop: 42487, Start Num: 5

Candidate Starts for BryanRecycles\_60:

(Start: 5 @42798 has 66 MA's), (6, 42783), (Start: 7 @42771 has 1 MA's), (9, 42762), (10, 42747), (11, 42741), (12, 42720), (14, 42639), (17, 42570), (19, 42534),

Gene: Caelum\_66 Start: 42672, Stop: 42367, Start Num: 5

Candidate Starts for Caelum\_66:

(Start: 5 @42672 has 66 MA's), (8, 42645), (9, 42639), (10, 42624), (11, 42618), (17, 42447), (18, 42420),

Gene: Caliburn\_57 Start: 42412, Stop: 42101, Start Num: 5

Candidate Starts for Caliburn\_57:

(1, 42652), (3, 42565), (4, 42529), (Start: 5 @42412 has 66 MA's), (6, 42397), (Start: 7 @42385 has 1 MA's), (9, 42376), (10, 42361), (11, 42355), (12, 42334), (14, 42253), (17, 42184), (19, 42148),

Gene: Celeste\_61 Start: 43589, Stop: 43284, Start Num: 5

Candidate Starts for Celeste\_61:

(Start: 5 @43589 has 66 MA's), (Start: 7 @43562 has 1 MA's), (9, 43553), (10, 43538), (11, 43532), (12, 43511), (13, 43487), (14, 43430), (17, 43361),

Gene: Chucky\_59 Start: 44598, Stop: 44293, Start Num: 5

Candidate Starts for Chucky\_59:

(Start: 5 @44598 has 66 MA's), (Start: 7 @44571 has 1 MA's), (9, 44562), (10, 44547), (11, 44541), (12, 44520), (14, 44439), (17, 44370),

Gene: Danzina\_61 Start: 43838, Stop: 43533, Start Num: 5

Candidate Starts for Danzina\_61:

(Start: 5 @43838 has 66 MA's), (Start: 7 @43811 has 1 MA's), (9, 43802), (10, 43787), (11, 43781), (12, 43760), (14, 43679), (17, 43610), (18, 43583), (19, 43574),

Gene: Dattran\_62 Start: 43953, Stop: 43675, Start Num: 7

Candidate Starts for Dattran\_62:

(Start: 5 @43980 has 66 MA's), (Start: 7 @43953 has 1 MA's), (9, 43944), (10, 43929), (11, 43923), (12, 43902), (13, 43878), (14, 43821), (17, 43752),

Gene: Dwayne\_59 Start: 44586, Stop: 44281, Start Num: 5

Candidate Starts for Dwayne\_59:

(Start: 5 @44586 has 66 MA's), (Start: 7 @44559 has 1 MA's), (9, 44550), (10, 44535), (11, 44529), (12, 44508), (14, 44427), (17, 44358),

Gene: ELB20\_64 Start: 43394, Stop: 43080, Start Num: 5

Candidate Starts for ELB20\_64:

(2, 43589), (Start: 5 @43394 has 66 MA's), (6, 43382), (Start: 7 @43370 has 1 MA's), (8, 43367), (9, 43361), (10, 43346), (11, 43340), (16, 43193), (17, 43169), (18, 43142), (19, 43133),

Gene: Eddasa\_61 Start: 43337, Stop: 43026, Start Num: 5

Candidate Starts for Eddasa\_61:

(Start: 5 @43337 has 66 MA's), (6, 43322), (Start: 7 @43310 has 1 MA's), (9, 43301), (10, 43286), (11, 43280), (12, 43259), (14, 43178), (17, 43109), (19, 43073),

Gene: Ejemplo\_57 Start: 44524, Stop: 44219, Start Num: 5

Candidate Starts for Ejemplo\_57:

(Start: 5 @44524 has 66 MA's), (Start: 7 @44497 has 1 MA's), (9, 44488), (10, 44473), (11, 44467), (12, 44446), (14, 44365), (17, 44296),

Gene: Emaanora\_62 Start: 44509, Stop: 44204, Start Num: 5

Candidate Starts for Emaanora\_62:

(Start: 5 @44509 has 66 MA's), (Start: 7 @44482 has 1 MA's), (9, 44473), (10, 44458), (11, 44452), (12, 44431), (14, 44350), (17, 44281),

Gene: EnochSoames\_62 Start: 42594, Stop: 42283, Start Num: 5

Candidate Starts for EnochSoames\_62:

(1, 42834), (3, 42747), (4, 42711), (Start: 5 @42594 has 66 MA's), (6, 42579), (Start: 7 @42567 has 1 MA's), (9, 42558), (10, 42543), (11, 42537), (12, 42516), (14, 42435), (17, 42366), (19, 42330),

Gene: Esperer\_59 Start: 42654, Stop: 42343, Start Num: 5

Candidate Starts for Esperer\_59:

(1, 42894), (3, 42807), (4, 42771), (Start: 5 @42654 has 66 MA's), (6, 42639), (Start: 7 @42627 has 1 MA's), (9, 42618), (10, 42603), (11, 42597), (12, 42576), (14, 42495), (17, 42426), (19, 42390),

Gene: Goby\_61 Start: 44406, Stop: 44101, Start Num: 5

Candidate Starts for Goby\_61:

(Start: 5 @44406 has 66 MA's), (Start: 7 @44379 has 1 MA's), (9, 44370), (10, 44355), (11, 44349), (12, 44328), (14, 44247), (17, 44178), (18, 44151),

Gene: Godpower\_61 Start: 43682, Stop: 43377, Start Num: 5

Candidate Starts for Godpower\_61:

(Start: 5 @43682 has 66 MA's), (Start: 7 @43655 has 1 MA's), (9, 43646), (10, 43631), (11, 43625), (12, 43604), (14, 43523), (17, 43454), (18, 43427),

Gene: Hippo\_59 Start: 44572, Stop: 44267, Start Num: 5

Candidate Starts for Hippo\_59:

(Start: 5 @44572 has 66 MA's), (Start: 7 @44545 has 1 MA's), (9, 44536), (10, 44521), (11, 44515), (12, 44494), (14, 44413), (17, 44344),

Gene: Hydra\_60 Start: 43490, Stop: 43179, Start Num: 5

Candidate Starts for Hydra\_60:

(1, 43730), (3, 43643), (4, 43607), (Start: 5 @43490 has 66 MA's), (6, 43475), (Start: 7 @43463 has 1 MA's), (9, 43454), (10, 43439), (11, 43433), (12, 43412), (14, 43331), (17, 43262), (19, 43226),

Gene: Indigo\_57 Start: 42304, Stop: 41993, Start Num: 5

Candidate Starts for Indigo\_57:

(1, 42544), (3, 42457), (4, 42421), (Start: 5 @42304 has 66 MA's), (6, 42289), (Start: 7 @42277 has 1 MA's), (9, 42268), (10, 42253), (11, 42247), (12, 42226), (14, 42145), (17, 42076), (19, 42040),

Gene: Issmi\_64 Start: 42912, Stop: 42595, Start Num: 5

Candidate Starts for Issmi\_64:

(Start: 5 @42912 has 66 MA's), (6, 42897), (8, 42882), (10, 42861), (11, 42855), (14, 42753), (15, 42750), (17, 42684), (18, 42657), (19, 42648),

Gene: Izzy\_60 Start: 42845, Stop: 42534, Start Num: 5

Candidate Starts for Izzy\_60:

(Start: 5 @42845 has 66 MA's), (6, 42830), (Start: 7 @42818 has 1 MA's), (9, 42809), (10, 42794), (11, 42788), (12, 42767), (14, 42686), (17, 42617), (19, 42581),

Gene: Jash\_60 Start: 42798, Stop: 42487, Start Num: 5

Candidate Starts for Jash\_60:

(Start: 5 @42798 has 66 MA's), (6, 42783), (Start: 7 @42771 has 1 MA's), (9, 42762), (10, 42747), (11, 42741), (12, 42720), (14, 42639), (17, 42570), (19, 42534),

Gene: Katalie\_59 Start: 44825, Stop: 44526, Start Num: 5

Candidate Starts for Katalie\_59:

(Start: 5 @44825 has 66 MA's), (6, 44813), (10, 44777), (11, 44771), (14, 44669), (17, 44600), (18, 44573), (19, 44564), (20, 44543),

Gene: Legacy\_57 Start: 42403, Stop: 42092, Start Num: 5

Candidate Starts for Legacy\_57:

(1, 42643), (3, 42556), (4, 42520), (Start: 5 @42403 has 66 MA's), (6, 42388), (Start: 7 @42376 has 1 MA's), (9, 42367), (10, 42352), (11, 42346), (12, 42325), (14, 42244), (17, 42175), (19, 42139),

Gene: Leviticus\_59 Start: 42841, Stop: 42530, Start Num: 5

Candidate Starts for Leviticus\_59:

(1, 43081), (3, 42994), (4, 42958), (Start: 5 @42841 has 66 MA's), (6, 42826), (Start: 7 @42814 has 1 MA's), (9, 42805), (10, 42790), (11, 42784), (12, 42763), (14, 42682), (17, 42613), (19, 42577),

Gene: Lika\_60 Start: 44235, Stop: 43930, Start Num: 5

Candidate Starts for Lika\_60:

(Start: 5 @44235 has 66 MA's), (Start: 7 @44208 has 1 MA's), (9, 44199), (10, 44184), (11, 44178), (12, 44157), (14, 44076), (17, 44007), (18, 43980),

Gene: Loofah\_68 Start: 44241, Stop: 43927, Start Num: 5

Candidate Starts for Loofah\_68:

(Start: 5 @44241 has 66 MA's), (6, 44229), (Start: 7 @44217 has 1 MA's), (8, 44214), (9, 44208), (10, 44193), (11, 44187), (17, 44016), (18, 43989), (19, 43980),

Gene: Lorelei\_60 Start: 43596, Stop: 43291, Start Num: 5

Candidate Starts for Lorelei\_60:

(Start: 5 @43596 has 66 MA's), (Start: 7 @43569 has 1 MA's), (9, 43560), (10, 43545), (11, 43539), (12, 43518), (14, 43437), (17, 43368), (18, 43341),

Gene: Maneekul\_59 Start: 44602, Stop: 44297, Start Num: 5

Candidate Starts for Maneekul\_59:

(Start: 5 @44602 has 66 MA's), (Start: 7 @44575 has 1 MA's), (9, 44566), (10, 44551), (11, 44545), (12, 44524), (14, 44443), (17, 44374),

Gene: Nabi\_61 Start: 44126, Stop: 43821, Start Num: 5

Candidate Starts for Nabi\_61:

(Start: 5 @44126 has 66 MA's), (Start: 7 @44099 has 1 MA's), (9, 44090), (10, 44075), (11, 44069), (12, 44048), (14, 43967), (17, 43898), (18, 43871),

Gene: Nanodon\_65 Start: 44867, Stop: 44562, Start Num: 5

Candidate Starts for Nanodon\_65:

(Start: 5 @44867 has 66 MA's), (6, 44855), (14, 44711), (17, 44642), (19, 44606),

Gene: Nerdos\_57 Start: 42303, Stop: 41992, Start Num: 5

Candidate Starts for Nerdos\_57:

(1, 42543), (3, 42456), (4, 42420), (Start: 5 @42303 has 66 MA's), (6, 42288), (Start: 7 @42276 has 1 MA's), (9, 42267), (10, 42252), (11, 42246), (12, 42225), (14, 42144), (17, 42075), (19, 42039),

Gene: Oliynyk\_60 Start: 42798, Stop: 42487, Start Num: 5

Candidate Starts for Oliynyk\_60:

(Start: 5 @42798 has 66 MA's), (6, 42783), (Start: 7 @42771 has 1 MA's), (9, 42762), (10, 42747), (11, 42741), (12, 42720), (14, 42639), (17, 42570), (19, 42534),

Gene: Ozzie\_57 Start: 42412, Stop: 42101, Start Num: 5

Candidate Starts for Ozzie\_57:

(1, 42652), (3, 42565), (4, 42529), (Start: 5 @42412 has 66 MA's), (6, 42397), (Start: 7 @42385 has 1 MA's), (9, 42376), (10, 42361), (11, 42355), (12, 42334), (14, 42253), (17, 42184), (19, 42148),

Gene: OzzyJ\_61 Start: 44499, Stop: 44194, Start Num: 5

Candidate Starts for OzzyJ\_61:

(Start: 5 @44499 has 66 MA's), (6, 44487), (Start: 7 @44475 has 1 MA's), (9, 44466), (10, 44451), (11, 44445), (12, 44424), (14, 44343), (17, 44274), (18, 44247), (19, 44238),

Gene: Pablito\_63 Start: 42405, Stop: 42097, Start Num: 5

Candidate Starts for Pablito\_63:

(Start: 5 @42405 has 66 MA's), (8, 42378), (9, 42372), (10, 42357), (11, 42351), (14, 42249), (17, 42180), (18, 42153), (19, 42144),

Gene: Paedore\_66 Start: 43798, Stop: 43484, Start Num: 5

Candidate Starts for Paedore\_66:

(Start: 5 @43798 has 66 MA's), (6, 43786), (Start: 7 @43774 has 1 MA's), (8, 43771), (9, 43765), (10, 43750), (11, 43744), (17, 43573), (18, 43546), (19, 43537),

Gene: Phettuccine\_58 Start: 42304, Stop: 41993, Start Num: 5

Candidate Starts for Phettuccine\_58:

(1, 42544), (3, 42457), (4, 42421), (Start: 5 @42304 has 66 MA's), (6, 42289), (Start: 7 @42277 has 1 MA's), (9, 42268), (10, 42253), (11, 42247), (12, 42226), (14, 42145), (17, 42076), (19, 42040),

Gene: R4\_65 Start: 43554, Stop: 43240, Start Num: 5

Candidate Starts for R4\_65:

(2, 43749), (Start: 5 @43554 has 66 MA's), (6, 43542), (Start: 7 @43530 has 1 MA's), (8, 43527), (9, 43521), (10, 43506), (11, 43500), (16, 43353), (17, 43329), (18, 43302), (19, 43293),

Gene: Rana\_61 Start: 44018, Stop: 43713, Start Num: 5



Candidate Starts for Rana\_61:

(Start: 5 @44018 has 66 MA's), (Start: 7 @43991 has 1 MA's), (9, 43982), (10, 43967), (11, 43961), (12, 43940), (14, 43859), (17, 43790), (18, 43763),

Gene: RedBear\_60 Start: 44825, Stop: 44526, Start Num: 5

Candidate Starts for RedBear\_60:

(Start: 5 @44825 has 66 MA's), (6, 44813), (10, 44777), (11, 44771), (14, 44669), (17, 44600), (18, 44573), (19, 44564), (20, 44543),

Gene: Rusticus\_60 Start: 42798, Stop: 42487, Start Num: 5

Candidate Starts for Rusticus\_60:

(Start: 5 @42798 has 66 MA's), (6, 42783), (Start: 7 @42771 has 1 MA's), (9, 42762), (10, 42747), (11, 42741), (12, 42720), (14, 42639), (17, 42570), (19, 42534),

Gene: SarahRose\_59 Start: 44571, Stop: 44266, Start Num: 5

Candidate Starts for SarahRose\_59:

(Start: 5 @44571 has 66 MA's), (Start: 7 @44544 has 1 MA's), (9, 44535), (10, 44520), (11, 44514), (12, 44493), (14, 44412), (17, 44343),

Gene: Snorlax\_59 Start: 44596, Stop: 44291, Start Num: 5

Candidate Starts for Snorlax\_59:

(Start: 5 @44596 has 66 MA's), (Start: 7 @44569 has 1 MA's), (9, 44560), (10, 44545), (11, 44539), (12, 44518), (14, 44437), (17, 44368),

Gene: South40\_59 Start: 44825, Stop: 44526, Start Num: 5

Candidate Starts for South40\_59:

(Start: 5 @44825 has 66 MA's), (6, 44813), (10, 44777), (11, 44771), (14, 44669), (17, 44600), (18, 44573), (19, 44564), (20, 44543),

Gene: Sujidade\_61 Start: 44470, Stop: 44165, Start Num: 5

Candidate Starts for Sujidade\_61:

(Start: 5 @44470 has 66 MA's), (Start: 7 @44443 has 1 MA's), (9, 44434), (10, 44419), (11, 44413), (12, 44392), (14, 44311), (17, 44242), (18, 44215),

Gene: SunsetPointe\_57 Start: 42419, Stop: 42108, Start Num: 5

Candidate Starts for SunsetPointe\_57:

(1, 42659), (3, 42572), (4, 42536), (Start: 5 @42419 has 66 MA's), (6, 42404), (Start: 7 @42392 has 1 MA's), (9, 42383), (10, 42368), (11, 42362), (12, 42341), (14, 42260), (17, 42191), (19, 42155),

Gene: TagePighther\_61 Start: 44572, Stop: 44267, Start Num: 5

Candidate Starts for TagePighther\_61:

(Start: 5 @44572 has 66 MA's), (Start: 7 @44545 has 1 MA's), (9, 44536), (10, 44521), (11, 44515), (12, 44494), (14, 44413), (17, 44344),

Gene: Toma\_61 Start: 44409, Stop: 44104, Start Num: 5

Candidate Starts for Toma\_61:

(Start: 5 @44409 has 66 MA's), (Start: 7 @44382 has 1 MA's), (9, 44373), (10, 44358), (11, 44352), (12, 44331), (14, 44250), (17, 44181), (18, 44154),

Gene: Triste\_60 Start: 44571, Stop: 44266, Start Num: 5

Candidate Starts for Triste\_60:

(Start: 5 @44571 has 66 MA's), (Start: 7 @44544 has 1 MA's), (9, 44535), (10, 44520), (11, 44514), (12, 44493), (14, 44412), (17, 44343),

Gene: Triumph\_66 Start: 43472, Stop: 43161, Start Num: 5

Candidate Starts for Triumph\_66:

(Start: 5 @43472 has 66 MA's), (6, 43457), (8, 43442), (10, 43421), (11, 43415), (12, 43394), (16, 43268), (17, 43244), (19, 43208),

Gene: TrvxScott\_62 Start: 43972, Stop: 43670, Start Num: 5

Candidate Starts for TrvxScott\_62:

(Start: 5 @43972 has 66 MA's), (6, 43957), (8, 43942), (9, 43936), (11, 43915), (14, 43813), (17, 43744),

Gene: TuanPN\_57 Start: 44524, Stop: 44219, Start Num: 5

Candidate Starts for TuanPN\_57:

(Start: 5 @44524 has 66 MA's), (Start: 7 @44497 has 1 MA's), (9, 44488), (10, 44473), (11, 44467), (12, 44446), (14, 44365), (17, 44296),

Gene: Unstoppable\_58 Start: 42302, Stop: 41991, Start Num: 5

Candidate Starts for Unstoppable\_58:

(1, 42542), (3, 42455), (4, 42419), (Start: 5 @42302 has 66 MA's), (6, 42287), (Start: 7 @42275 has 1 MA's), (9, 42266), (10, 42251), (11, 42245), (12, 42224), (14, 42143), (17, 42074), (19, 42038),

Gene: Werner\_59 Start: 44569, Stop: 44264, Start Num: 5

Candidate Starts for Werner\_59:

(Start: 5 @44569 has 66 MA's), (Start: 7 @44542 has 1 MA's), (9, 44533), (10, 44518), (11, 44512), (12, 44491), (14, 44410), (17, 44341),

Gene: Whatever\_59 Start: 44595, Stop: 44290, Start Num: 5

Candidate Starts for Whatever\_59:

(Start: 5 @44595 has 66 MA's), (Start: 7 @44568 has 1 MA's), (9, 44559), (10, 44544), (11, 44538), (12, 44517), (14, 44436), (17, 44367),

Gene: Yasdnii\_59 Start: 44621, Stop: 44316, Start Num: 5

Candidate Starts for Yasdnii\_59:

(Start: 5 @44621 has 66 MA's), (Start: 7 @44594 has 1 MA's), (9, 44585), (10, 44570), (11, 44564), (12, 44543), (14, 44462), (17, 44393),

Gene: Zemlya\_61 Start: 44143, Stop: 43838, Start Num: 5

Candidate Starts for Zemlya\_61:

(Start: 5 @44143 has 66 MA's), (Start: 7 @44116 has 1 MA's), (9, 44107), (10, 44092), (11, 44086), (12, 44065), (14, 43984), (17, 43915), (18, 43888), (19, 43879),