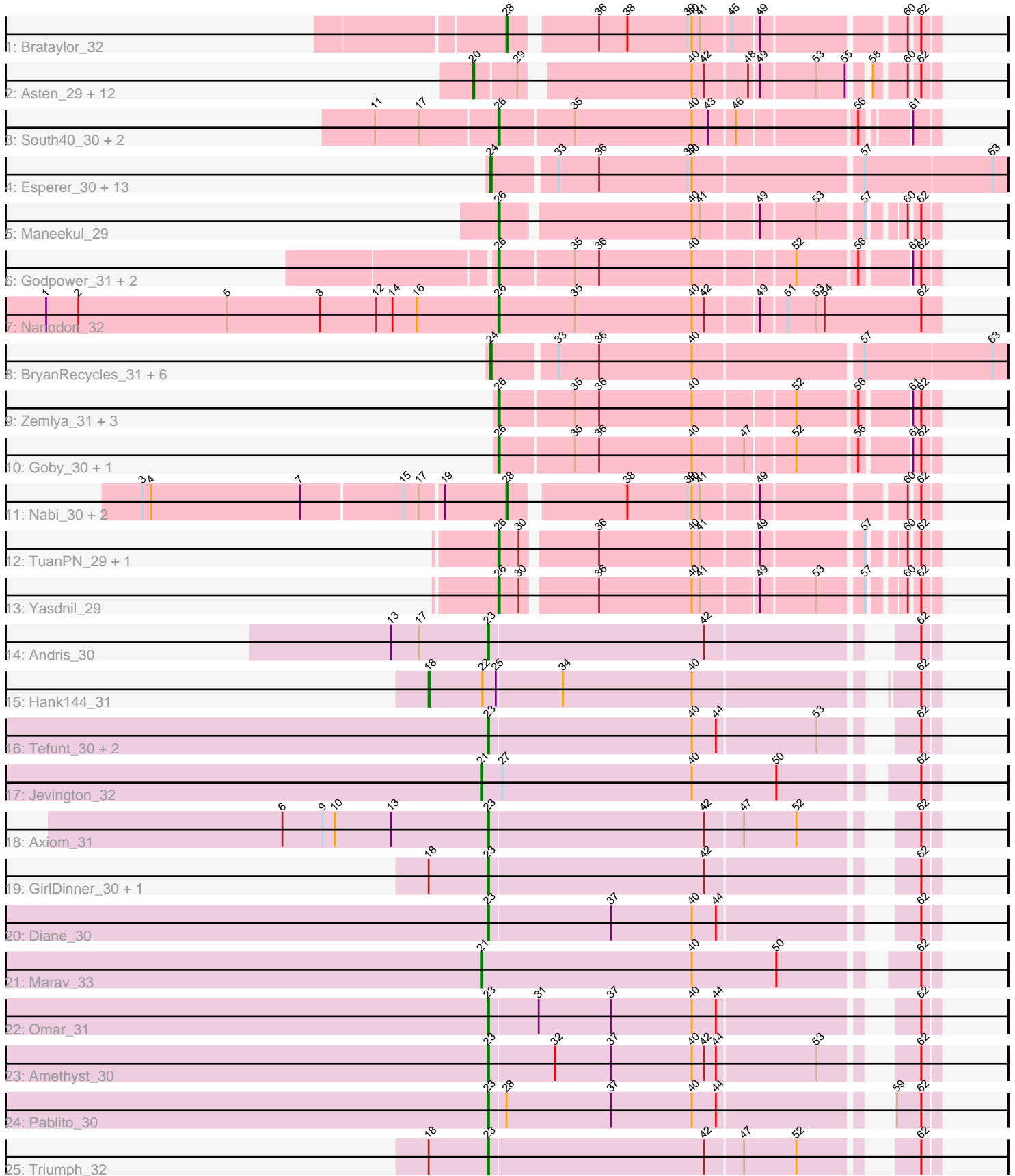


Pham 303342



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 303342 Report

This analysis was run 06/08/26 on database version 649.

Pham number 303342 has 70 members, 1 are drafts.

Phages represented in each track:

- Track 1 : Brataylor\_32
- Track 2 : Asten\_29, Dwayne\_29, BarryBee\_31, Hippo\_29, Emaanora\_31, Werner\_29, OzzyJ\_30, Triste\_29, TagePhighter\_30, SarahRose\_29, Snorlax\_29, Chucky\_29, Whatever\_29
- Track 3 : South40\_30, Katalie\_30, RedBear\_31
- Track 4 : Esperer\_30, Bovely\_30, Legacy\_30, BeardedLady\_31, Nerdos\_30, Aaronocolus\_30, Caliburn\_30, Ozzie\_30, Leviticus\_30, Hydra\_32, SunsetPointe\_30, Indigo\_29, Unstoppable\_30, Phettuccine\_30
- Track 5 : Maneekul\_29
- Track 6 : Godpower\_31, Sujidade\_31, Lika\_30
- Track 7 : Nanodon\_32
- Track 8 : BryanRecycles\_31, Eddasa\_31, EnochSoames\_33, Izzy\_31, Oliynyk\_31, Jash\_31, Rusticus\_31
- Track 9 : Zemlya\_31, Dattran\_31, Celeste\_30, Danzina\_31
- Track 10 : Goby\_30, Toma\_30
- Track 11 : Nabi\_30, Lorelei\_30, Rana\_30
- Track 12 : TuanPN\_29, Ejemplo\_29
- Track 13 : Yasdnil\_29
- Track 14 : Andris\_30
- Track 15 : Hank144\_31
- Track 16 : Tefunt\_30, Nishikigoi\_30, Haizum\_30
- Track 17 : Jevington\_32
- Track 18 : Axiom\_31
- Track 19 : GirlDinner\_30, Janus\_31
- Track 20 : Diane\_30
- Track 21 : Marav\_33
- Track 22 : Omar\_31
- Track 23 : Amethyst\_30
- Track 24 : Pablito\_30
- Track 25 : Triumph\_32

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

The start number called the most often in the published annotations is 24, it was called in 20 of the 69 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aaronocolus\_30, BeardedLady\_31, Bovely\_30, BryanRecycles\_31, Caliburn\_30, Eddasa\_31, EnochSoames\_33, Esperer\_30, Hydra\_32, Indigo\_29, Izzy\_31, Jash\_31, Legacy\_30, Leviticus\_30, Nerdos\_30, Oliynyk\_31, Ozzie\_30, Phettuccine\_30, Rusticus\_31, SunsetPointe\_30, Unstoppable\_30,

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

- 

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

- Amethyst\_30, Andris\_30, Asten\_29, Axiom\_31, BarryBee\_31, Brataylor\_32, Celeste\_30, Chucky\_29, Danzina\_31, Dattran\_31, Diane\_30, Dwayne\_29, Ejemplo\_29, Emaanora\_31, GirlDinner\_30, Goby\_30, Godpower\_31, Haizum\_30, Hank144\_31, Hippo\_29, Janus\_31, Jevington\_32, Katalie\_30, Lika\_30, Lorelei\_30, Maneekul\_29, Marav\_33, Nabi\_30, Nanodon\_32, Nishikigoi\_30, Omar\_31, OzzyJ\_30, Pablito\_30, Rana\_30, RedBear\_31, SarahRose\_29, Snorlax\_29, South40\_30, Sujidade\_31, TagePhighter\_30, Tefunt\_30, Toma\_30, Triste\_29, Triumph\_32, TuanPN\_29, Werner\_29, Whatever\_29, Yasdnil\_29, Zemlya\_31,

### Summary by start number:

Start 18:

- Found in 4 of 70 ( 5.7% ) of genes in pham
- Manual Annotations of this start: 1 of 69
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Hank144\_31 (BD2),

Start 20:

- Found in 13 of 70 ( 18.6% ) of genes in pham
- Manual Annotations of this start: 13 of 69
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Asten\_29 (BD1), BarryBee\_31 (BD1), Chucky\_29 (BD1), Dwayne\_29 (BD1), Emaanora\_31 (BD1), Hippo\_29 (BD1), OzzyJ\_30 (BD1), SarahRose\_29 (BD1), Snorlax\_29 (BD1), TagePhighter\_30 (BD1), Triste\_29 (BD1), Werner\_29 (BD1), Whatever\_29 (BD1),

Start 21:

- Found in 2 of 70 ( 2.9% ) of genes in pham
- Manual Annotations of this start: 2 of 69
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jevington\_32 (BD2), Marav\_33 (BD2),

Start 23:

- Found in 12 of 70 ( 17.1% ) of genes in pham
- Manual Annotations of this start: 12 of 69
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amethyst\_30 (BD2), Andris\_30 (BD2), Axiom\_31 (BD2), Diane\_30 (BD2), GirlDinner\_30 (BD2), Haizum\_30 (BD2), Janus\_31 (BD2), Nishikigoi\_30 (BD2), Omar\_31 (BD2), Pablito\_30 (BD2), Tefunt\_30 (BD2), Triumph\_32 (BD2),

Start 24:

- Found in 21 of 70 ( 30.0% ) of genes in pham
- Manual Annotations of this start: 20 of 69
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aaronocolus\_30 (BD1), BeardedLady\_31 (BD1), Bovely\_30 (BD1), BryanRecycles\_31 (BD1), Caliburn\_30 (BD1), Eddasa\_31 (BD1), EnochSoames\_33 (BD1), Esperer\_30 (BD1), Hydra\_32 (BD1), Indigo\_29 (BD1), Izzy\_31 (BD1), Jash\_31 (BD1), Legacy\_30 (BD1), Leviticus\_30 (BD1), Nerdos\_30 (BD1), Oliynyk\_31 (BD1), Ozzie\_30 (BD1), Phettuccine\_30 (BD1), Rusticus\_31 (BD1), SunsetPointe\_30 (BD1), Unstoppable\_30 (BD1),

Start 26:

- Found in 17 of 70 ( 24.3% ) of genes in pham
- Manual Annotations of this start: 17 of 69
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Celeste\_30 (BD1), Danzina\_31 (BD1), Dattran\_31 (BD1), Ejemplo\_29 (BD1), Goby\_30 (BD1), Godpower\_31 (BD1), Katalie\_30 (BD1), Lika\_30 (BD1), Maneekul\_29 (BD1), Nanodon\_32 (BD1), RedBear\_31 (BD1), South40\_30 (BD1), Sujidade\_31 (BD1), Toma\_30 (BD1), TuanPN\_29 (BD1), Yasdnil\_29 (BD1), Zemlya\_31 (BD1),

Start 28:

- Found in 5 of 70 ( 7.1% ) of genes in pham
- Manual Annotations of this start: 4 of 69
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Brataylor\_32 (BD1), Lorelei\_30 (BD1), Nabi\_30 (BD1), Rana\_30 (BD1),

**Summary by clusters:**

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

Info for manual annotations of cluster BD1:

- Start number 20 was manually annotated 13 times for cluster BD1.
- Start number 24 was manually annotated 20 times for cluster BD1.
- Start number 26 was manually annotated 17 times for cluster BD1.
- Start number 28 was manually annotated 4 times for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 18 was manually annotated 1 time for cluster BD2.
- Start number 21 was manually annotated 2 times for cluster BD2.
- Start number 23 was manually annotated 12 times for cluster BD2.

**Gene Information:**

Gene: Aaronocolus\_30 Start: 23162, Stop: 23530, Start Num: 24

Candidate Starts for Aaronocolus\_30:

(Start: 24 @23162 has 20 MA's), (33, 23207), (36, 23237), (39, 23303), (40, 23306), (57, 23426), (63, 23519),

Gene: Amethyst\_30 Start: 23945, Stop: 24244, Start Num: 23

Candidate Starts for Amethyst\_30:

(Start: 23 @23945 has 12 MA's), (32, 23993), (37, 24035), (40, 24095), (42, 24104), (44, 24113), (53, 24185), (62, 24233),

Gene: Andris\_30 Start: 23975, Stop: 24274, Start Num: 23

Candidate Starts for Andris\_30:

(13, 23903), (17, 23924), (Start: 23 @23975 has 12 MA's), (42, 24134), (62, 24263),

Gene: Asten\_29 Start: 23467, Stop: 23763, Start Num: 20

Candidate Starts for Asten\_29:

(Start: 20 @23467 has 13 MA's), (29, 23497), (40, 23611), (42, 23620), (48, 23650), (49, 23656), (53, 23695), (55, 23716), (58, 23725), (60, 23746), (62, 23752),

Gene: Axiom\_31 Start: 24146, Stop: 24445, Start Num: 23

Candidate Starts for Axiom\_31:

(6, 23996), (9, 24026), (10, 24035), (13, 24077), (Start: 23 @24146 has 12 MA's), (42, 24305), (47, 24332), (52, 24371), (62, 24434),

Gene: BarryBee\_31 Start: 23477, Stop: 23773, Start Num: 20

Candidate Starts for BarryBee\_31:

(Start: 20 @23477 has 13 MA's), (29, 23507), (40, 23621), (42, 23630), (48, 23660), (49, 23666), (53, 23705), (55, 23726), (58, 23735), (60, 23756), (62, 23762),

Gene: BeardedLady\_31 Start: 23415, Stop: 23783, Start Num: 24

Candidate Starts for BeardedLady\_31:

(Start: 24 @23415 has 20 MA's), (33, 23460), (36, 23490), (39, 23556), (40, 23559), (57, 23679), (63, 23772),

Gene: Bovely\_30 Start: 23168, Stop: 23536, Start Num: 24

Candidate Starts for Bovely\_30:

(Start: 24 @23168 has 20 MA's), (33, 23213), (36, 23243), (39, 23309), (40, 23312), (57, 23432), (63, 23525),

Gene: Brataylor\_32 Start: 24443, Stop: 24727, Start Num: 28

Candidate Starts for Brataylor\_32:

(Start: 28 @24443 has 4 MA's), (36, 24500), (38, 24521), (39, 24566), (40, 24569), (41, 24575), (45, 24596), (49, 24614), (60, 24710), (62, 24716),

Gene: BryanRecycles\_31 Start: 23519, Stop: 23887, Start Num: 24

Candidate Starts for BryanRecycles\_31:

(Start: 24 @23519 has 20 MA's), (33, 23564), (36, 23594), (40, 23663), (57, 23783), (63, 23876),

Gene: Caliburn\_30 Start: 23145, Stop: 23513, Start Num: 24

Candidate Starts for Caliburn\_30:

(Start: 24 @23145 has 20 MA's), (33, 23190), (36, 23220), (39, 23286), (40, 23289), (57, 23409), (63, 23502),

Gene: Celeste\_30 Start: 23894, Stop: 24196, Start Num: 26

Candidate Starts for Celeste\_30:

(Start: 26 @23894 has 17 MA's), (35, 23948), (36, 23966), (40, 24035), (52, 24104), (56, 24146), (61, 24179), (62, 24185),

Gene: Chucky\_29 Start: 23481, Stop: 23777, Start Num: 20

Candidate Starts for Chucky\_29:

(Start: 20 @23481 has 13 MA's), (29, 23511), (40, 23625), (42, 23634), (48, 23664), (49, 23670), (53, 23709), (55, 23730), (58, 23739), (60, 23760), (62, 23766),

Gene: Danzina\_31 Start: 24195, Stop: 24497, Start Num: 26

Candidate Starts for Danzina\_31:

(Start: 26 @24195 has 17 MA's), (35, 24249), (36, 24267), (40, 24336), (52, 24405), (56, 24447), (61, 24480), (62, 24486),

Gene: Dattran\_31 Start: 24001, Stop: 24303, Start Num: 26

Candidate Starts for Dattran\_31:

(Start: 26 @24001 has 17 MA's), (35, 24055), (36, 24073), (40, 24142), (52, 24211), (56, 24253), (61, 24286), (62, 24292),

Gene: Diane\_30 Start: 24288, Stop: 24587, Start Num: 23

Candidate Starts for Diane\_30:

(Start: 23 @24288 has 12 MA's), (37, 24378), (40, 24438), (44, 24456), (62, 24576),

Gene: Dwayne\_29 Start: 23468, Stop: 23764, Start Num: 20

Candidate Starts for Dwayne\_29:

(Start: 20 @23468 has 13 MA's), (29, 23498), (40, 23612), (42, 23621), (48, 23651), (49, 23657), (53, 23696), (55, 23717), (58, 23726), (60, 23747), (62, 23753),

Gene: Eddasa\_31 Start: 23519, Stop: 23887, Start Num: 24

Candidate Starts for Eddasa\_31:

(Start: 24 @23519 has 20 MA's), (33, 23564), (36, 23594), (40, 23663), (57, 23783), (63, 23876),

Gene: Ejemplo\_29 Start: 23530, Stop: 23817, Start Num: 26

Candidate Starts for Ejemplo\_29:

(Start: 26 @23530 has 17 MA's), (30, 23545), (36, 23596), (40, 23665), (41, 23671), (49, 23710), (57, 23779), (60, 23800), (62, 23806),

Gene: Emaanora\_31 Start: 23426, Stop: 23722, Start Num: 20

Candidate Starts for Emaanora\_31:

(Start: 20 @23426 has 13 MA's), (29, 23456), (40, 23570), (42, 23579), (48, 23609), (49, 23615), (53, 23654), (55, 23675), (58, 23684), (60, 23705), (62, 23711),

Gene: EnochSoames\_33 Start: 23514, Stop: 23882, Start Num: 24

Candidate Starts for EnochSoames\_33:

(Start: 24 @23514 has 20 MA's), (33, 23559), (36, 23589), (40, 23658), (57, 23778), (63, 23871),

Gene: Esperer\_30 Start: 22981, Stop: 23349, Start Num: 24

Candidate Starts for Esperer\_30:

(Start: 24 @22981 has 20 MA's), (33, 23026), (36, 23056), (39, 23122), (40, 23125), (57, 23245), (63, 23338),

Gene: GirlDinner\_30 Start: 23927, Stop: 24226, Start Num: 23

Candidate Starts for GirlDinner\_30:

(Start: 18 @23885 has 1 MA's), (Start: 23 @23927 has 12 MA's), (42, 24086), (62, 24215),

Gene: Goby\_30 Start: 24022, Stop: 24324, Start Num: 26

Candidate Starts for Goby\_30:

(Start: 26 @24022 has 17 MA's), (35, 24076), (36, 24094), (40, 24163), (47, 24199), (52, 24232), (56, 24274), (61, 24307), (62, 24313),

Gene: Godpower\_31 Start: 24016, Stop: 24318, Start Num: 26

Candidate Starts for Godpower\_31:

(Start: 26 @24016 has 17 MA's), (35, 24070), (36, 24088), (40, 24157), (52, 24226), (56, 24268), (61, 24301), (62, 24307),

Gene: Haizum\_30 Start: 23962, Stop: 24261, Start Num: 23

Candidate Starts for Haizum\_30:

(Start: 23 @23962 has 12 MA's), (40, 24112), (44, 24130), (53, 24202), (62, 24250),

Gene: Hank144\_31 Start: 24298, Stop: 24642, Start Num: 18

Candidate Starts for Hank144\_31:

(Start: 18 @24298 has 1 MA's), (22, 24337), (25, 24346), (34, 24394), (40, 24490), (62, 24631),

Gene: Hippo\_29 Start: 23477, Stop: 23773, Start Num: 20

Candidate Starts for Hippo\_29:

(Start: 20 @23477 has 13 MA's), (29, 23507), (40, 23621), (42, 23630), (48, 23660), (49, 23666), (53, 23705), (55, 23726), (58, 23735), (60, 23756), (62, 23762),

Gene: Hydra\_32 Start: 23693, Stop: 24061, Start Num: 24

Candidate Starts for Hydra\_32:

(Start: 24 @23693 has 20 MA's), (33, 23738), (36, 23768), (39, 23834), (40, 23837), (57, 23957), (63, 24050),

Gene: Indigo\_29 Start: 23161, Stop: 23529, Start Num: 24

Candidate Starts for Indigo\_29:

(Start: 24 @23161 has 20 MA's), (33, 23206), (36, 23236), (39, 23302), (40, 23305), (57, 23425), (63, 23518),

Gene: Izzy\_31 Start: 23566, Stop: 23934, Start Num: 24

Candidate Starts for Izzy\_31:

(Start: 24 @23566 has 20 MA's), (33, 23611), (36, 23641), (40, 23710), (57, 23830), (63, 23923),

Gene: Janus\_31 Start: 24265, Stop: 24564, Start Num: 23

Candidate Starts for Janus\_31:

(Start: 18 @24223 has 1 MA's), (Start: 23 @24265 has 12 MA's), (42, 24424), (62, 24553),

Gene: Jash\_31 Start: 23519, Stop: 23887, Start Num: 24

Candidate Starts for Jash\_31:

(Start: 24 @23519 has 20 MA's), (33, 23564), (36, 23594), (40, 23663), (57, 23783), (63, 23876),

Gene: Jevington\_32 Start: 24613, Stop: 24927, Start Num: 21

Candidate Starts for Jevington\_32:

(Start: 21 @24613 has 2 MA's), (27, 24628), (40, 24769), (50, 24832), (62, 24916),

Gene: Katalie\_30 Start: 23761, Stop: 24060, Start Num: 26

Candidate Starts for Katalie\_30:

(11, 23674), (17, 23707), (Start: 26 @23761 has 17 MA's), (35, 23815), (40, 23902), (43, 23914), (46, 23932), (56, 24013), (61, 24043),

Gene: Legacy\_30 Start: 23136, Stop: 23504, Start Num: 24

Candidate Starts for Legacy\_30:

(Start: 24 @23136 has 20 MA's), (33, 23181), (36, 23211), (39, 23277), (40, 23280), (57, 23400), (63, 23493),

Gene: Leviticus\_30 Start: 23165, Stop: 23533, Start Num: 24

Candidate Starts for Leviticus\_30:

(Start: 24 @23165 has 20 MA's), (33, 23210), (36, 23240), (39, 23306), (40, 23309), (57, 23429), (63, 23522),

Gene: Lika\_30 Start: 24020, Stop: 24322, Start Num: 26

Candidate Starts for Lika\_30:

(Start: 26 @24020 has 17 MA's), (35, 24074), (36, 24092), (40, 24161), (52, 24230), (56, 24272), (61, 24305), (62, 24311),

Gene: Lorelei\_30 Start: 23978, Stop: 24262, Start Num: 28

Candidate Starts for Lorelei\_30:

(3, 23717), (4, 23723), (7, 23834), (15, 23906), (17, 23918), (19, 23933), (Start: 28 @23978 has 4 MA's), (38, 24056), (39, 24101), (40, 24104), (41, 24110), (49, 24149), (60, 24245), (62, 24251),

Gene: Maneekul\_29 Start: 23501, Stop: 23788, Start Num: 26

Candidate Starts for Maneekul\_29:

(Start: 26 @23501 has 17 MA's), (40, 23636), (41, 23642), (49, 23681), (53, 23720), (57, 23750), (60, 23771), (62, 23777),

Gene: Marav\_33 Start: 24943, Stop: 25257, Start Num: 21

Candidate Starts for Marav\_33:

(Start: 21 @24943 has 2 MA's), (40, 25099), (50, 25162), (62, 25246),

Gene: Nabi\_30 Start: 23978, Stop: 24262, Start Num: 28

Candidate Starts for Nabi\_30:

(3, 23717), (4, 23723), (7, 23834), (15, 23906), (17, 23918), (19, 23933), (Start: 28 @23978 has 4 MA's), (38, 24056), (39, 24101), (40, 24104), (41, 24110), (49, 24149), (60, 24245), (62, 24251),

Gene: Nanodon\_32 Start: 23831, Stop: 24151, Start Num: 26

Candidate Starts for Nanodon\_32:

(1, 23495), (2, 23519), (5, 23630), (8, 23699), (12, 23741), (14, 23753), (16, 23771), (Start: 26 @23831 has 17 MA's), (35, 23888), (40, 23975), (42, 23984), (49, 24020), (51, 24038), (53, 24059), (54, 24065), (62, 24137),

Gene: Nerdos\_30 Start: 23159, Stop: 23527, Start Num: 24

Candidate Starts for Nerdos\_30:

(Start: 24 @23159 has 20 MA's), (33, 23204), (36, 23234), (39, 23300), (40, 23303), (57, 23423), (63, 23516),

Gene: Nishikigoi\_30 Start: 23962, Stop: 24261, Start Num: 23

Candidate Starts for Nishikigoi\_30:

(Start: 23 @23962 has 12 MA's), (40, 24112), (44, 24130), (53, 24202), (62, 24250),

Gene: Oliynyk\_31 Start: 23519, Stop: 23887, Start Num: 24

Candidate Starts for Oliynyk\_31:

(Start: 24 @23519 has 20 MA's), (33, 23564), (36, 23594), (40, 23663), (57, 23783), (63, 23876),

Gene: Omar\_31 Start: 24224, Stop: 24523, Start Num: 23  
Candidate Starts for Omar\_31:  
(Start: 23 @24224 has 12 MA's), (31, 24260), (37, 24314), (40, 24374), (44, 24392), (62, 24512),

Gene: Ozzie\_30 Start: 23145, Stop: 23513, Start Num: 24  
Candidate Starts for Ozzie\_30:  
(Start: 24 @23145 has 20 MA's), (33, 23190), (36, 23220), (39, 23286), (40, 23289), (57, 23409), (63, 23502),

Gene: OzzyJ\_30 Start: 23468, Stop: 23764, Start Num: 20  
Candidate Starts for OzzyJ\_30:  
(Start: 20 @23468 has 13 MA's), (29, 23498), (40, 23612), (42, 23621), (48, 23651), (49, 23657), (53, 23696), (55, 23717), (58, 23726), (60, 23747), (62, 23753),

Gene: Pablito\_30 Start: 23843, Stop: 24142, Start Num: 23  
Candidate Starts for Pablito\_30:  
(Start: 23 @23843 has 12 MA's), (Start: 28 @23855 has 4 MA's), (37, 23933), (40, 23993), (44, 24011), (59, 24113), (62, 24131),

Gene: Phettuccine\_30 Start: 23161, Stop: 23529, Start Num: 24  
Candidate Starts for Phettuccine\_30:  
(Start: 24 @23161 has 20 MA's), (33, 23206), (36, 23236), (39, 23302), (40, 23305), (57, 23425), (63, 23518),

Gene: Rana\_30 Start: 23978, Stop: 24262, Start Num: 28  
Candidate Starts for Rana\_30:  
(3, 23717), (4, 23723), (7, 23834), (15, 23906), (17, 23918), (19, 23933), (Start: 28 @23978 has 4 MA's), (38, 24056), (39, 24101), (40, 24104), (41, 24110), (49, 24149), (60, 24245), (62, 24251),

Gene: RedBear\_31 Start: 23761, Stop: 24060, Start Num: 26  
Candidate Starts for RedBear\_31:  
(11, 23674), (17, 23707), (Start: 26 @23761 has 17 MA's), (35, 23815), (40, 23902), (43, 23914), (46, 23932), (56, 24013), (61, 24043),

Gene: Rusticus\_31 Start: 23519, Stop: 23887, Start Num: 24  
Candidate Starts for Rusticus\_31:  
(Start: 24 @23519 has 20 MA's), (33, 23564), (36, 23594), (40, 23663), (57, 23783), (63, 23876),

Gene: SarahRose\_29 Start: 23477, Stop: 23773, Start Num: 20  
Candidate Starts for SarahRose\_29:  
(Start: 20 @23477 has 13 MA's), (29, 23507), (40, 23621), (42, 23630), (48, 23660), (49, 23666), (53, 23705), (55, 23726), (58, 23735), (60, 23756), (62, 23762),

Gene: Snorlax\_29 Start: 23480, Stop: 23776, Start Num: 20  
Candidate Starts for Snorlax\_29:  
(Start: 20 @23480 has 13 MA's), (29, 23510), (40, 23624), (42, 23633), (48, 23663), (49, 23669), (53, 23708), (55, 23729), (58, 23738), (60, 23759), (62, 23765),

Gene: South40\_30 Start: 23761, Stop: 24060, Start Num: 26  
Candidate Starts for South40\_30:  
(11, 23674), (17, 23707), (Start: 26 @23761 has 17 MA's), (35, 23815), (40, 23902), (43, 23914), (46, 23932), (56, 24013), (61, 24043),

Gene: Sujidade\_31 Start: 24305, Stop: 24607, Start Num: 26

Candidate Starts for Sujidade\_31:

(Start: 26 @24305 has 17 MA's), (35, 24359), (36, 24377), (40, 24446), (52, 24515), (56, 24557), (61, 24590), (62, 24596),

Gene: SunsetPointe\_30 Start: 23152, Stop: 23520, Start Num: 24

Candidate Starts for SunsetPointe\_30:

(Start: 24 @23152 has 20 MA's), (33, 23197), (36, 23227), (39, 23293), (40, 23296), (57, 23416), (63, 23509),

Gene: TagePhighter\_30 Start: 23480, Stop: 23776, Start Num: 20

Candidate Starts for TagePhighter\_30:

(Start: 20 @23480 has 13 MA's), (29, 23510), (40, 23624), (42, 23633), (48, 23663), (49, 23669), (53, 23708), (55, 23729), (58, 23738), (60, 23759), (62, 23765),

Gene: Tefunt\_30 Start: 23965, Stop: 24264, Start Num: 23

Candidate Starts for Tefunt\_30:

(Start: 23 @23965 has 12 MA's), (40, 24115), (44, 24133), (53, 24205), (62, 24253),

Gene: Toma\_30 Start: 24022, Stop: 24324, Start Num: 26

Candidate Starts for Toma\_30:

(Start: 26 @24022 has 17 MA's), (35, 24076), (36, 24094), (40, 24163), (47, 24199), (52, 24232), (56, 24274), (61, 24307), (62, 24313),

Gene: Triste\_29 Start: 23468, Stop: 23764, Start Num: 20

Candidate Starts for Triste\_29:

(Start: 20 @23468 has 13 MA's), (29, 23498), (40, 23612), (42, 23621), (48, 23651), (49, 23657), (53, 23696), (55, 23717), (58, 23726), (60, 23747), (62, 23753),

Gene: Triumph\_32 Start: 24163, Stop: 24462, Start Num: 23

Candidate Starts for Triumph\_32:

(Start: 18 @24121 has 1 MA's), (Start: 23 @24163 has 12 MA's), (42, 24322), (47, 24349), (52, 24388), (62, 24451),

Gene: TuanPN\_29 Start: 23530, Stop: 23817, Start Num: 26

Candidate Starts for TuanPN\_29:

(Start: 26 @23530 has 17 MA's), (30, 23545), (36, 23596), (40, 23665), (41, 23671), (49, 23710), (57, 23779), (60, 23800), (62, 23806),

Gene: Unstoppable\_30 Start: 23156, Stop: 23524, Start Num: 24

Candidate Starts for Unstoppable\_30:

(Start: 24 @23156 has 20 MA's), (33, 23201), (36, 23231), (39, 23297), (40, 23300), (57, 23420), (63, 23513),

Gene: Werner\_29 Start: 23478, Stop: 23774, Start Num: 20

Candidate Starts for Werner\_29:

(Start: 20 @23478 has 13 MA's), (29, 23508), (40, 23622), (42, 23631), (48, 23661), (49, 23667), (53, 23706), (55, 23727), (58, 23736), (60, 23757), (62, 23763),

Gene: Whatever\_29 Start: 23478, Stop: 23774, Start Num: 20

Candidate Starts for Whatever\_29:

(Start: 20 @23478 has 13 MA's), (29, 23508), (40, 23622), (42, 23631), (48, 23661), (49, 23667), (53, 23706), (55, 23727), (58, 23736), (60, 23757), (62, 23763),

Gene: Yasdnii\_29 Start: 23529, Stop: 23816, Start Num: 26

Candidate Starts for Yasdnii\_29:

(Start: 26 @23529 has 17 MA's), (30, 23544), (36, 23595), (40, 23664), (41, 23670), (49, 23709), (53, 23748), (57, 23778), (60, 23799), (62, 23805),

Gene: Zemlya\_31 Start: 24001, Stop: 24303, Start Num: 26

Candidate Starts for Zemlya\_31:

(Start: 26 @24001 has 17 MA's), (35, 24055), (36, 24073), (40, 24142), (52, 24211), (56, 24253), (61, 24286), (62, 24292),