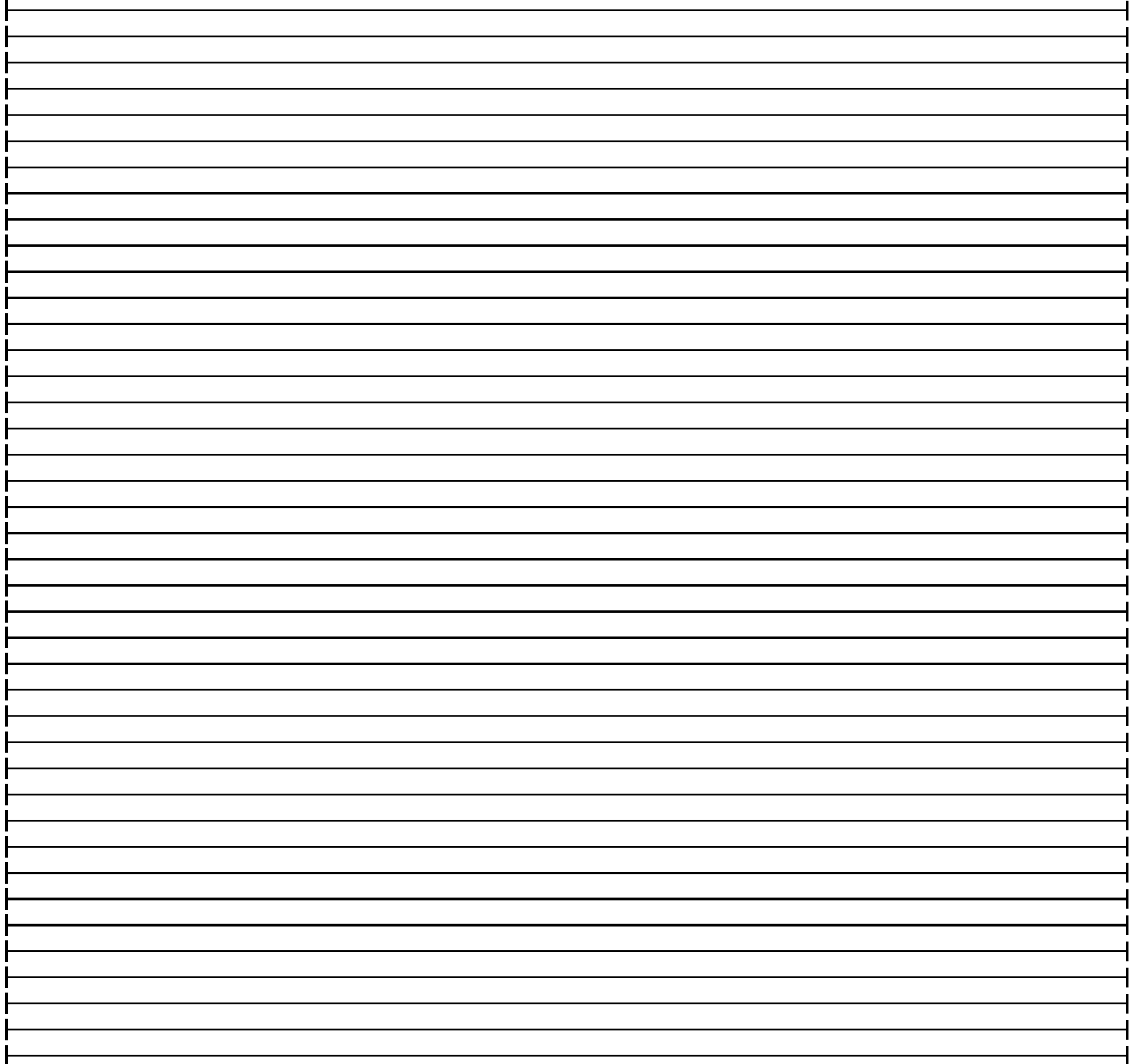
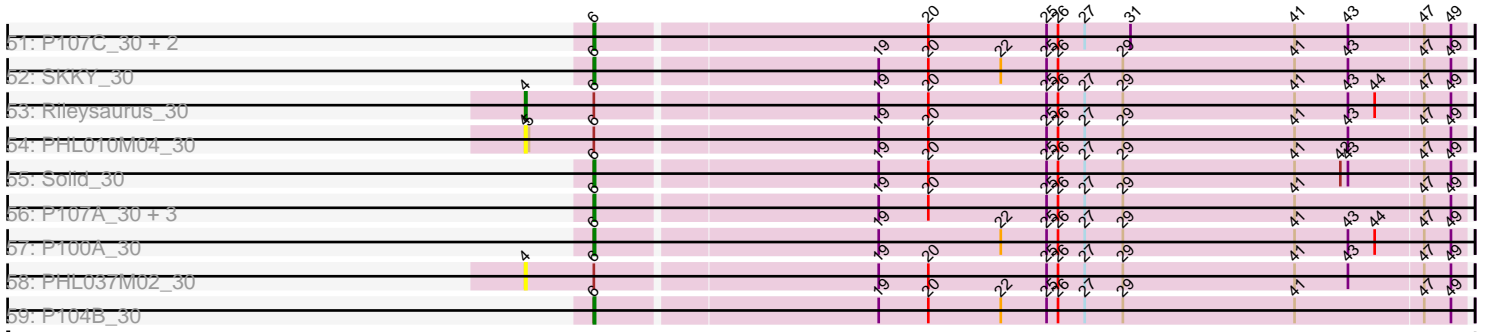




Pham 294525



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 294525 Report

This analysis was run 04/18/26 on database version 643.

Pham number 294525 has 135 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Toma\_39, Sujidade\_40, Goby\_39, Dattran\_41, Celeste\_40, Nanodon\_41, Danzina\_41, Zemlya\_41
- Track 2 : Snorlax\_39, Werner\_39, Chucky\_39, Emaanora\_42, Triste\_39, SarahRose\_39, BarryBee\_42, TagePighiter\_41
- Track 3 : Ozzie\_39, BeardedLady\_40, Bovely\_39
- Track 4 : RedBear\_40, South40\_39, Katalie\_39
- Track 5 : Esperer\_39, Phettuccine\_39, Indigo\_38
- Track 6 : Brataylor\_42
- Track 7 : Whatever\_39, Hippo\_39, OzzyJ\_40, Dwayne\_39
- Track 8 : Maneekul\_39, Yasdniil\_39
- Track 9 : Ejemplo\_38
- Track 10 : Oliynyk\_40
- Track 11 : Nabi\_40, Rana\_40, Lorelei\_40
- Track 12 : Godpower\_40, Lika\_39
- Track 13 : Jevington\_42
- Track 14 : Caelum\_41
- Track 15 : Diane\_39, Tefunt\_41, Haizum\_41, Nishikigoi\_41
- Track 16 : Bowden\_40, TrvxScott\_39, TinaBelcher\_40
- Track 17 : Animus\_39, SqueakyClean\_39, Janus\_40, GirlDinner\_39
- Track 18 : Zainub\_42, Puginator\_42, Paolo\_42
- Track 19 : Issmi\_41
- Track 20 : BartholomewSD\_42, Alvy\_42
- Track 21 : Paedore\_39
- Track 22 : R4\_40
- Track 23 : Loofah\_40
- Track 24 : Superstar\_43
- Track 25 : Marav\_43
- Track 26 : Hank144\_41
- Track 27 : Pablito\_39
- Track 28 : ELB20\_38
- Track 29 : Thestral\_41
- Track 30 : Triumph\_41, Axiom\_40
- Track 31 : Daudau\_40
- Track 32 : Omar\_42
- Track 33 : Amethyst\_39
- Track 34 : Andris\_39

- Track 35 : Provolone\_41, Alsaber\_41, Dexers\_39, Sudan\_40, Pavo\_41, Kaine\_40, ElGato\_41, Conan\_41
- Track 36 : Speedwell\_45
- Track 37 : Amela\_40
- Track 38 : SunkenRoot\_41
- Track 39 : ZamZam\_40
- Track 40 : Jhitchelle\_39
- Track 41 : Saftant\_40
- Track 42 : Verse\_40
- Track 43 : Yosif\_42
- Track 44 : GreenWeasel\_41
- Track 45 : BroPlease\_40
- Track 46 : Itza\_41
- Track 47 : Urza\_41
- Track 48 : P106L\_30, Procrass1\_30, PHL060L00\_30, P106M\_30, P106I\_30, P106C\_31, Aquarius\_30, DrParker\_30, P9.1\_30, P106A\_30
- Track 49 : PHL071N05\_30, Lauchelly\_30, BruceLethal\_30, Supernova\_30, QueenBey\_30, Ouroboros\_30, Enoki\_30, Moyashi\_30, P108C\_30, Cota\_30
- Track 50 : Leviosa\_30, PHL114L00\_30, P101A\_30, PAD20\_31, LilBandit\_30, P104A\_30, P1.1\_30, Wizzo\_30
- Track 51 : P107C\_30, ATCC29399BC\_30, ATCC29399BT\_30
- Track 52 : SKKY\_30
- Track 53 : Rileysaurus\_30
- Track 54 : PHL010M04\_30
- Track 55 : Solid\_30
- Track 56 : P107A\_30, PHL113M01\_30, PHL111M01\_30, P105\_30
- Track 57 : P100A\_30
- Track 58 : PHL037M02\_30
- Track 59 : P104B\_30

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

The start number called the most often in the published annotations is 8, it was called in 39 of the 125 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• Alsaber\_41, Amela\_40, Brataylor\_42, Celeste\_40, Conan\_41, Danzina\_41, Dattran\_41, Dexers\_39, Dwayne\_39, ElGato\_41, Esperer\_39, Goby\_39, Godpower\_40, Hippo\_39, Indigo\_38, Kaine\_40, Lika\_39, Lorelei\_40, Maneeekul\_39, Nabi\_40, Nanodon\_41, Oliynyk\_40, OzzyJ\_40, Pavo\_41, Phettuccine\_39, Provolone\_41, Rana\_40, Saftant\_40, Speedwell\_45, Sudan\_40, Sujidade\_40, Toma\_39, Urza\_41, Verse\_40, Whatever\_39, Yasdnil\_39, Yosif\_42, ZamZam\_40, Zemlya\_41,

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

• BarryBee\_42, BeardedLady\_40, Bovely\_39, Chucky\_39, Ejemplo\_38, Emaanora\_42, Itza\_41, Jhitchelle\_39, Katalie\_39, Ozzie\_39, RedBear\_40, SarahRose\_39, Snorlax\_39, South40\_39, SunkenRoot\_41, TagePhighter\_41, Triste\_39, Werner\_39,

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

- ATCC29399BC\_30, ATCC29399BT\_30, Alvy\_42, Amethyst\_39, Andris\_39, Animus\_39, Aquarius\_30, Axiom\_40, BartholomewSD\_42, Bowden\_40, BroPlease\_40, BruceLethal\_30, Caelum\_41, Cota\_30, Daudau\_40, Diane\_39, DrParker\_30, ELB20\_38, Enoki\_30, GirlDinner\_39, GreenWeasel\_41, Haizum\_41, Hank144\_41, Issmi\_41, Janus\_40, Jevington\_42, Lauchelly\_30, Leviosa\_30, LilBandit\_30, Loofah\_40, Marav\_43, Moyashi\_30, Nishikigoi\_41, Omar\_42, Ouroboros\_30, P1.1\_30, P100A\_30, P101A\_30, P104A\_30, P104B\_30, P105\_30, P106A\_30, P106C\_31, P106I\_30, P106L\_30, P106M\_30, P107A\_30, P107C\_30, P108C\_30, P9.1\_30, PAD20\_31, PHL010M04\_30, PHL037M02\_30, PHL060L00\_30, PHL071N05\_30, PHL111M01\_30, PHL113M01\_30, PHL114L00\_30, Pablito\_39, Paedore\_39, Paolo\_42, Procrass1\_30, Puginator\_42, QueenBey\_30, R4\_40, Rileysaurus\_30, SKKY\_30, Solid\_30, SqueakyClean\_39, Supernova\_30, Superstar\_43, Tefunt\_41, Thestral\_41, TinaBelcher\_40, Triumph\_41, TrvxScott\_39, Wizzo\_30, Zainub\_42,

### Summary by start number:

Start 4:

- Found in 3 of 135 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 1 of 125
- Called 100.0% of time when present
- Phage (with cluster) where this start called: PHL010M04\_30 (BU), PHL037M02\_30 (BU), Rileysaurus\_30 (BU),

Start 6:

- Found in 42 of 135 ( 31.1% ) of genes in pham
- Manual Annotations of this start: 33 of 125
- Called 92.9% of time when present
- Phage (with cluster) where this start called: ATCC29399BC\_30 (BU), ATCC29399BT\_30 (BU), Aquarius\_30 (BU), BruceLethal\_30 (BU), Cota\_30 (BU), DrParker\_30 (BU), Enoki\_30 (BU), Lauchelly\_30 (BU), Leviosa\_30 (BU), LilBandit\_30 (BU), Moyashi\_30 (BU), Ouroboros\_30 (BU), P1.1\_30 (BU), P100A\_30 (BU), P101A\_30 (BU), P104A\_30 (BU), P104B\_30 (BU), P105\_30 (BU), P106A\_30 (BU), P106C\_31 (BU), P106I\_30 (BU), P106L\_30 (BU), P106M\_30 (BU), P107A\_30 (BU), P107C\_30 (BU), P108C\_30 (BU), P9.1\_30 (BU), PAD20\_31 (BU), PHL060L00\_30 (BU), PHL071N05\_30 (BU), PHL111M01\_30 (BU), PHL113M01\_30 (BU), PHL114L00\_30 (BU), Procrass1\_30 (BU), QueenBey\_30 (BU), SKKY\_30 (BU), Solid\_30 (BU), Supernova\_30 (BU), Wizzo\_30 (BU),

Start 7:

- Found in 34 of 135 ( 25.2% ) of genes in pham
- Manual Annotations of this start: 33 of 125
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alvy\_42 (BD2), Amethyst\_39 (BD2), Andris\_39 (BD2), Animus\_39 (BD2), Axiom\_40 (BD2), BartholomewSD\_42 (BD2), Bowden\_40 (BD2), Caelum\_41 (BD2), Daudau\_40 (BD2), Diane\_39 (BD2), ELB20\_38 (BD2), GirlDinner\_39 (BD2), Haizum\_41 (BD2), Hank144\_41 (BD2), Issmi\_41 (BD2), Janus\_40 (BD2), Jevington\_42 (BD2), Loofah\_40 (BD2), Marav\_43 (BD2), Nishikigoi\_41 (BD2), Omar\_42 (BD2), Pablito\_39 (BD2), Paedore\_39 (BD2), Paolo\_42 (BD2), Puginator\_42 (BD2), R4\_40 (BD2), SqueakyClean\_39 (BD2), Superstar\_43 (BD2), Tefunt\_41 (BD2), Thestral\_41 (BD2), TinaBelcher\_40 (BD2), Triumph\_41 (BD2), TrvxScott\_39 (BD2), Zainub\_42 (BD2),

#### Start 8:

- Found in 57 of 135 ( 42.2% ) of genes in pham
- Manual Annotations of this start: 39 of 125
- Called 68.4% of time when present
- Phage (with cluster) where this start called: Alsaber\_41 (BD3), Amela\_40 (BD3), Brataylor\_42 (BD1), Celeste\_40 (BD1), Conan\_41 (BD3), Danzina\_41 (BD1), Dattran\_41 (BD1), Dexers\_39 (BD3), Dwayne\_39 (BD1), ElGato\_41 (BD3), Esperer\_39 (BD1), Goby\_39 (BD1), Godpower\_40 (BD1), Hippo\_39 (BD1), Indigo\_38 (BD1), Kaine\_40 (BD3), Lika\_39 (BD1), Lorelei\_40 (BD1), Maneekul\_39 (BD1), Nabi\_40 (BD1), Nanodon\_41 (BD1), Oliynyk\_40 (BD1), OzzyJ\_40 (BD1), Pavo\_41 (BD3), Phettuccine\_39 (BD1), Provolone\_41 (BD3), Rana\_40 (BD1), Saftant\_40 (BD3), Speedwell\_45 (BD3), Sudan\_40 (BD3), Sujidade\_40 (BD1), Toma\_39 (BD1), Urza\_41 (BD6), Verse\_40 (BD3), Whatever\_39 (BD1), Yasdnil\_39 (BD1), Yosif\_42 (BD3), ZamZam\_40 (BD3), Zemlya\_41 (BD1),

#### Start 9:

- Found in 59 of 135 ( 43.7% ) of genes in pham
- Manual Annotations of this start: 19 of 125
- Called 32.2% of time when present
- Phage (with cluster) where this start called: BarryBee\_42 (BD1), BeardedLady\_40 (BD1), Bovely\_39 (BD1), BroPlease\_40 (BD4), Chucky\_39 (BD1), Ejemplo\_38 (BD1), Emaanora\_42 (BD1), GreenWeasel\_41 (BD4), Itza\_41 (BD6), Jhitchelle\_39 (BD3), Katalie\_39 (BD1), Ozzie\_39 (BD1), RedBear\_40 (BD1), SarahRose\_39 (BD1), Snorlax\_39 (BD1), South40\_39 (BD1), TAgePhighter\_41 (BD1), Triste\_39 (BD1), Werner\_39 (BD1),

#### Start 14:

- Found in 33 of 135 ( 24.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 3.0% of time when present
- Phage (with cluster) where this start called: SunkenRoot\_41 (BD3),

### **Summary by clusters:**

There are 6 clusters represented in this pham: BD4, BU, BD6, BD1, BD3, BD2,

Info for manual annotations of cluster BD1:

- Start number 8 was manually annotated 24 times for cluster BD1.
- Start number 9 was manually annotated 15 times for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 7 was manually annotated 33 times for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 8 was manually annotated 14 times for cluster BD3.
- Start number 9 was manually annotated 1 time for cluster BD3.

Info for manual annotations of cluster BD4:

- Start number 9 was manually annotated 2 times for cluster BD4.

Info for manual annotations of cluster BD6:

- Start number 8 was manually annotated 1 time for cluster BD6.

- Start number 9 was manually annotated 1 time for cluster BD6.

Info for manual annotations of cluster BU:

- Start number 4 was manually annotated 1 time for cluster BU.
- Start number 6 was manually annotated 33 times for cluster BU.

### **Gene Information:**

Gene: ATCC29399BC\_30 Start: 21324, Stop: 20653, Start Num: 6

Candidate Starts for ATCC29399BC\_30:

(Start: 6 @21324 has 33 MA's), (20, 21072), (25, 20979), (26, 20970), (27, 20949), (31, 20913), (41, 20784), (43, 20742), (47, 20685), (49, 20664),

Gene: ATCC29399BT\_30 Start: 21324, Stop: 20653, Start Num: 6

Candidate Starts for ATCC29399BT\_30:

(Start: 6 @21324 has 33 MA's), (20, 21072), (25, 20979), (26, 20970), (27, 20949), (31, 20913), (41, 20784), (43, 20742), (47, 20685), (49, 20664),

Gene: Alsaber\_41 Start: 29707, Stop: 30372, Start Num: 8

Candidate Starts for Alsaber\_41:

(Start: 8 @29707 has 39 MA's), (Start: 9 @29722 has 19 MA's), (20, 29950), (22, 30007), (23, 30013), (24, 30034), (25, 30043), (29, 30103), (30, 30106), (32, 30115), (38, 30178), (39, 30199), (43, 30280), (44, 30301),

Gene: Alvy\_42 Start: 29365, Stop: 30027, Start Num: 7

Candidate Starts for Alvy\_42:

(2, 29038), (3, 29095), (Start: 7 @29365 has 33 MA's), (11, 29413), (14, 29476), (18, 29566), (20, 29611), (24, 29695), (37, 29815), (38, 29839), (43, 29941), (45, 29974),

Gene: Amela\_40 Start: 30514, Stop: 31179, Start Num: 8

Candidate Starts for Amela\_40:

(Start: 8 @30514 has 39 MA's), (Start: 9 @30529 has 19 MA's), (14, 30622), (20, 30757), (22, 30814), (23, 30820), (24, 30841), (25, 30850), (29, 30910), (32, 30922), (38, 30985), (43, 31087), (44, 31108),

Gene: Amethyst\_39 Start: 28730, Stop: 29392, Start Num: 7

Candidate Starts for Amethyst\_39:

(2, 28406), (3, 28463), (Start: 7 @28730 has 33 MA's), (11, 28778), (14, 28841), (18, 28931), (20, 28976), (24, 29060), (37, 29180), (38, 29204), (39, 29225), (43, 29306), (44, 29324), (45, 29339), (48, 29372),

Gene: Andris\_39 Start: 28789, Stop: 29460, Start Num: 7

Candidate Starts for Andris\_39:

(Start: 7 @28789 has 33 MA's), (11, 28837), (13, 28873), (15, 28930), (18, 28990), (20, 29035), (21, 29050), (24, 29119), (37, 29239), (38, 29263), (39, 29284), (43, 29365), (46, 29419),

Gene: Animus\_39 Start: 29205, Stop: 29864, Start Num: 7

Candidate Starts for Animus\_39:

(Start: 7 @29205 has 33 MA's), (11, 29253), (14, 29316), (18, 29406), (24, 29535), (37, 29655), (38, 29679), (39, 29700), (43, 29781),

Gene: Aquarius\_30 Start: 20797, Stop: 20126, Start Num: 6

Candidate Starts for Aquarius\_30:

(Start: 6 @20797 has 33 MA's), (19, 20584), (20, 20545), (25, 20452), (26, 20443), (29, 20392), (41, 20257), (43, 20215), (47, 20158), (49, 20137),

Gene: Axiom\_40 Start: 28951, Stop: 29613, Start Num: 7

Candidate Starts for Axiom\_40:

(1, 28507), (2, 28624), (3, 28681), (Start: 7 @28951 has 33 MA's), (11, 28999), (12, 29014), (13, 29035), (14, 29062), (18, 29152), (20, 29197), (24, 29281), (37, 29401), (38, 29425), (43, 29527), (44, 29545),

Gene: BarryBee\_42 Start: 28204, Stop: 28854, Start Num: 9

Candidate Starts for BarryBee\_42:

(Start: 8 @28189 has 39 MA's), (Start: 9 @28204 has 19 MA's), (10, 28207), (17, 28348), (20, 28432), (22, 28489), (23, 28495), (24, 28516), (28, 28561), (29, 28585), (32, 28597), (34, 28606), (35, 28615), (38, 28660), (39, 28681), (43, 28762), (44, 28783), (48, 28831),

Gene: BartholomewSD\_42 Start: 29364, Stop: 30026, Start Num: 7

Candidate Starts for BartholomewSD\_42:

(2, 29037), (3, 29094), (Start: 7 @29364 has 33 MA's), (11, 29412), (14, 29475), (18, 29565), (20, 29610), (24, 29694), (37, 29814), (38, 29838), (43, 29940), (45, 29973),

Gene: BeardedLady\_40 Start: 28085, Stop: 28735, Start Num: 9

Candidate Starts for BeardedLady\_40:

(Start: 8 @28070 has 39 MA's), (Start: 9 @28085 has 19 MA's), (10, 28088), (17, 28229), (20, 28313), (22, 28370), (23, 28376), (24, 28397), (25, 28406), (28, 28442), (29, 28466), (32, 28478), (34, 28487), (35, 28496), (38, 28541), (43, 28643), (44, 28664), (48, 28712),

Gene: Bovely\_39 Start: 27838, Stop: 28488, Start Num: 9

Candidate Starts for Bovely\_39:

(Start: 8 @27823 has 39 MA's), (Start: 9 @27838 has 19 MA's), (10, 27841), (17, 27982), (20, 28066), (22, 28123), (23, 28129), (24, 28150), (25, 28159), (28, 28195), (29, 28219), (32, 28231), (34, 28240), (35, 28249), (38, 28294), (43, 28396), (44, 28417), (48, 28465),

Gene: Bowden\_40 Start: 29279, Stop: 29941, Start Num: 7

Candidate Starts for Bowden\_40:

(Start: 7 @29279 has 33 MA's), (11, 29327), (12, 29342), (14, 29390), (18, 29480), (20, 29525), (24, 29609), (37, 29729), (38, 29753), (45, 29888), (46, 29909), (48, 29921),

Gene: Brataylor\_42 Start: 29162, Stop: 29827, Start Num: 8

Candidate Starts for Brataylor\_42:

(Start: 8 @29162 has 39 MA's), (Start: 9 @29177 has 19 MA's), (10, 29180), (20, 29405), (22, 29462), (23, 29468), (24, 29489), (25, 29498), (28, 29534), (29, 29558), (31, 29564), (32, 29570), (34, 29579), (35, 29588), (38, 29633), (39, 29654), (44, 29756), (48, 29804),

Gene: BroPlease\_40 Start: 28319, Stop: 28963, Start Num: 9

Candidate Starts for BroPlease\_40:

(Start: 9 @28319 has 19 MA's), (11, 28349), (18, 28502), (24, 28631), (35, 28730), (37, 28751), (38, 28775), (40, 28802), (44, 28898),

Gene: BruceLethal\_30 Start: 21333, Stop: 20662, Start Num: 6

Candidate Starts for BruceLethal\_30:

(Start: 6 @21333 has 33 MA's), (19, 21120), (20, 21081), (25, 20988), (26, 20979), (27, 20958), (29, 20928), (41, 20793), (43, 20751), (47, 20694), (49, 20673),

Gene: Caelum\_41 Start: 28977, Stop: 29639, Start Num: 7

Candidate Starts for Caelum\_41:

(Start: 7 @28977 has 33 MA's), (11, 29025), (18, 29178), (24, 29307), (25, 29316), (37, 29427), (38, 29451), (39, 29472), (43, 29553), (44, 29571), (45, 29586), (46, 29607), (48, 29619),

Gene: Celeste\_40 Start: 28631, Stop: 29296, Start Num: 8

Candidate Starts for Celeste\_40:

(Start: 8 @28631 has 39 MA's), (Start: 9 @28646 has 19 MA's), (10, 28649), (20, 28874), (22, 28931), (23, 28937), (24, 28958), (25, 28967), (28, 29003), (29, 29027), (32, 29039), (34, 29048), (35, 29057), (38, 29102), (39, 29123), (43, 29204), (44, 29225), (48, 29273),

Gene: Chucky\_39 Start: 28208, Stop: 28858, Start Num: 9

Candidate Starts for Chucky\_39:

(Start: 8 @28193 has 39 MA's), (Start: 9 @28208 has 19 MA's), (10, 28211), (17, 28352), (20, 28436), (22, 28493), (23, 28499), (24, 28520), (28, 28565), (29, 28589), (32, 28601), (34, 28610), (35, 28619), (38, 28664), (39, 28685), (43, 28766), (44, 28787), (48, 28835),

Gene: Conan\_41 Start: 29601, Stop: 30266, Start Num: 8

Candidate Starts for Conan\_41:

(Start: 8 @29601 has 39 MA's), (Start: 9 @29616 has 19 MA's), (20, 29844), (22, 29901), (23, 29907), (24, 29928), (25, 29937), (29, 29997), (30, 30000), (32, 30009), (38, 30072), (39, 30093), (43, 30174), (44, 30195),

Gene: Cota\_30 Start: 21373, Stop: 20702, Start Num: 6

Candidate Starts for Cota\_30:

(Start: 6 @21373 has 33 MA's), (19, 21160), (20, 21121), (25, 21028), (26, 21019), (27, 20998), (29, 20968), (41, 20833), (43, 20791), (47, 20734), (49, 20713),

Gene: Danzina\_41 Start: 28932, Stop: 29597, Start Num: 8

Candidate Starts for Danzina\_41:

(Start: 8 @28932 has 39 MA's), (Start: 9 @28947 has 19 MA's), (10, 28950), (20, 29175), (22, 29232), (23, 29238), (24, 29259), (25, 29268), (28, 29304), (29, 29328), (32, 29340), (34, 29349), (35, 29358), (38, 29403), (39, 29424), (43, 29505), (44, 29526), (48, 29574),

Gene: Dattran\_41 Start: 28738, Stop: 29403, Start Num: 8

Candidate Starts for Dattran\_41:

(Start: 8 @28738 has 39 MA's), (Start: 9 @28753 has 19 MA's), (10, 28756), (20, 28981), (22, 29038), (23, 29044), (24, 29065), (25, 29074), (28, 29110), (29, 29134), (32, 29146), (34, 29155), (35, 29164), (38, 29209), (39, 29230), (43, 29311), (44, 29332), (48, 29380),

Gene: Daudau\_40 Start: 29122, Stop: 29784, Start Num: 7

Candidate Starts for Daudau\_40:

(2, 28798), (3, 28855), (Start: 7 @29122 has 33 MA's), (11, 29170), (14, 29233), (18, 29323), (20, 29368), (24, 29452), (25, 29461), (37, 29572), (38, 29596), (39, 29617), (43, 29698), (44, 29716), (45, 29731),

Gene: Dexers\_39 Start: 29625, Stop: 30290, Start Num: 8

Candidate Starts for Dexers\_39:

(Start: 8 @29625 has 39 MA's), (Start: 9 @29640 has 19 MA's), (20, 29868), (22, 29925), (23, 29931), (24, 29952), (25, 29961), (29, 30021), (30, 30024), (32, 30033), (38, 30096), (39, 30117), (43, 30198), (44, 30219),

Gene: Diane\_39 Start: 28959, Stop: 29621, Start Num: 7

Candidate Starts for Diane\_39:

(3, 28692), (Start: 7 @28959 has 33 MA's), (11, 29007), (14, 29070), (18, 29160), (20, 29205), (24, 29289), (37, 29409), (38, 29433), (39, 29454), (43, 29535), (44, 29553), (45, 29568), (48, 29601),

Gene: DrParker\_30 Start: 21427, Stop: 20756, Start Num: 6

Candidate Starts for DrParker\_30:

(Start: 6 @21427 has 33 MA's), (19, 21214), (20, 21175), (25, 21082), (26, 21073), (29, 21022), (41, 20887), (43, 20845), (47, 20788), (49, 20767),

Gene: Dwayne\_39 Start: 28180, Stop: 28845, Start Num: 8

Candidate Starts for Dwayne\_39:

(Start: 8 @28180 has 39 MA's), (Start: 9 @28195 has 19 MA's), (10, 28198), (17, 28339), (20, 28423), (22, 28480), (23, 28486), (24, 28507), (28, 28552), (29, 28576), (32, 28588), (34, 28597), (35, 28606), (38, 28651), (39, 28672), (43, 28753), (44, 28774), (48, 28822),

Gene: ELB20\_38 Start: 29365, Stop: 30027, Start Num: 7

Candidate Starts for ELB20\_38:

(Start: 7 @29365 has 33 MA's), (11, 29413), (14, 29476), (18, 29566), (20, 29611), (24, 29695), (25, 29704), (37, 29815), (38, 29839), (39, 29860), (44, 29959), (45, 29974), (46, 29995),

Gene: Ejemplo\_38 Start: 28139, Stop: 28789, Start Num: 9

Candidate Starts for Ejemplo\_38:

(Start: 8 @28124 has 39 MA's), (Start: 9 @28139 has 19 MA's), (10, 28142), (20, 28367), (22, 28424), (23, 28430), (24, 28451), (28, 28496), (29, 28520), (32, 28532), (34, 28541), (35, 28550), (38, 28595), (39, 28616), (43, 28697), (44, 28718), (48, 28766),

Gene: ElGato\_41 Start: 29265, Stop: 29930, Start Num: 8

Candidate Starts for ElGato\_41:

(Start: 8 @29265 has 39 MA's), (Start: 9 @29280 has 19 MA's), (20, 29508), (22, 29565), (23, 29571), (24, 29592), (25, 29601), (29, 29661), (30, 29664), (32, 29673), (38, 29736), (39, 29757), (43, 29838), (44, 29859),

Gene: Emaanora\_42 Start: 28153, Stop: 28803, Start Num: 9

Candidate Starts for Emaanora\_42:

(Start: 8 @28138 has 39 MA's), (Start: 9 @28153 has 19 MA's), (10, 28156), (17, 28297), (20, 28381), (22, 28438), (23, 28444), (24, 28465), (28, 28510), (29, 28534), (32, 28546), (34, 28555), (35, 28564), (38, 28609), (39, 28630), (43, 28711), (44, 28732), (48, 28780),

Gene: Enoki\_30 Start: 21357, Stop: 20686, Start Num: 6

Candidate Starts for Enoki\_30:

(Start: 6 @21357 has 33 MA's), (19, 21144), (20, 21105), (25, 21012), (26, 21003), (27, 20982), (29, 20952), (41, 20817), (43, 20775), (47, 20718), (49, 20697),

Gene: Esperer\_39 Start: 27636, Stop: 28301, Start Num: 8

Candidate Starts for Esperer\_39:

(Start: 8 @27636 has 39 MA's), (Start: 9 @27651 has 19 MA's), (10, 27654), (17, 27795), (20, 27879), (22, 27936), (23, 27942), (24, 27963), (25, 27972), (28, 28008), (29, 28032), (32, 28044), (34, 28053), (35, 28062), (38, 28107), (43, 28209), (44, 28230), (48, 28278),

Gene: GirlDinner\_39 Start: 28706, Stop: 29365, Start Num: 7

Candidate Starts for GirlDinner\_39:

(Start: 7 @28706 has 33 MA's), (11, 28754), (14, 28817), (18, 28907), (24, 29036), (37, 29156), (38, 29180), (39, 29201), (43, 29282),

Gene: Goby\_39 Start: 28637, Stop: 29302, Start Num: 8

Candidate Starts for Goby\_39:

(Start: 8 @28637 has 39 MA's), (Start: 9 @28652 has 19 MA's), (10, 28655), (20, 28880), (22, 28937), (23, 28943), (24, 28964), (25, 28973), (28, 29009), (29, 29033), (32, 29045), (34, 29054), (35, 29063), (38, 29108), (39, 29129), (43, 29210), (44, 29231), (48, 29279),

Gene: Godpower\_40 Start: 28632, Stop: 29297, Start Num: 8

Candidate Starts for Godpower\_40:

(Start: 8 @28632 has 39 MA's), (Start: 9 @28647 has 19 MA's), (10, 28650), (17, 28791), (20, 28875), (22, 28932), (23, 28938), (24, 28959), (25, 28968), (28, 29004), (29, 29028), (32, 29040), (34, 29049), (35, 29058), (38, 29103), (39, 29124), (43, 29205), (44, 29226), (48, 29274),

Gene: GreenWeasel\_41 Start: 28326, Stop: 28970, Start Num: 9

Candidate Starts for GreenWeasel\_41:

(Start: 9 @28326 has 19 MA's), (11, 28356), (18, 28509), (24, 28638), (35, 28737), (37, 28758), (38, 28782), (39, 28803), (40, 28809), (44, 28905),

Gene: Haizum\_41 Start: 29074, Stop: 29736, Start Num: 7

Candidate Starts for Haizum\_41:

(3, 28807), (Start: 7 @29074 has 33 MA's), (11, 29122), (14, 29185), (18, 29275), (20, 29320), (24, 29404), (37, 29524), (38, 29548), (39, 29569), (43, 29650), (44, 29668), (45, 29683), (48, 29716),

Gene: Hank144\_41 Start: 29070, Stop: 29729, Start Num: 7

Candidate Starts for Hank144\_41:

(3, 28800), (Start: 7 @29070 has 33 MA's), (11, 29118), (12, 29133), (13, 29154), (14, 29181), (18, 29271), (24, 29400), (37, 29520), (38, 29544), (39, 29565), (43, 29646),

Gene: Hippo\_39 Start: 28192, Stop: 28857, Start Num: 8

Candidate Starts for Hippo\_39:

(Start: 8 @28192 has 39 MA's), (Start: 9 @28207 has 19 MA's), (10, 28210), (17, 28351), (20, 28435), (22, 28492), (23, 28498), (24, 28519), (28, 28564), (29, 28588), (32, 28600), (34, 28609), (35, 28618), (38, 28663), (39, 28684), (43, 28765), (44, 28786), (48, 28834),

Gene: Indigo\_38 Start: 27816, Stop: 28481, Start Num: 8

Candidate Starts for Indigo\_38:

(Start: 8 @27816 has 39 MA's), (Start: 9 @27831 has 19 MA's), (10, 27834), (17, 27975), (20, 28059), (22, 28116), (23, 28122), (24, 28143), (25, 28152), (28, 28188), (29, 28212), (32, 28224), (34, 28233), (35, 28242), (38, 28287), (43, 28389), (44, 28410), (48, 28458),

Gene: Issmi\_41 Start: 29674, Stop: 30336, Start Num: 7

Candidate Starts for Issmi\_41:

(3, 29404), (Start: 7 @29674 has 33 MA's), (11, 29722), (14, 29785), (18, 29875), (20, 29920), (24, 30004), (37, 30124), (38, 30148), (43, 30250), (45, 30283), (48, 30316),

Gene: Itza\_41 Start: 28661, Stop: 29311, Start Num: 9

Candidate Starts for Itza\_41:

(Start: 8 @28646 has 39 MA's), (Start: 9 @28661 has 19 MA's), (16, 28802), (22, 28946), (29, 29042), (38, 29117), (43, 29219), (44, 29240), (45, 29255),

Gene: Janus\_40 Start: 29046, Stop: 29705, Start Num: 7

Candidate Starts for Janus\_40:

(Start: 7 @29046 has 33 MA's), (11, 29094), (14, 29157), (18, 29247), (24, 29376), (37, 29496), (38, 29520), (39, 29541), (43, 29622),

Gene: Jevington\_42 Start: 29464, Stop: 30126, Start Num: 7

Candidate Starts for Jevington\_42:

(Start: 7 @29464 has 33 MA's), (11, 29512), (12, 29527), (13, 29548), (15, 29605), (18, 29665), (20, 29710), (24, 29794), (37, 29914), (38, 29938), (39, 29959),

Gene: Jhitchelle\_39 Start: 29153, Stop: 29803, Start Num: 9

Candidate Starts for Jhitchelle\_39:

(Start: 8 @29138 has 39 MA's), (Start: 9 @29153 has 19 MA's), (14, 29246), (20, 29381), (22, 29438), (23, 29444), (24, 29465), (25, 29474), (29, 29534), (30, 29537), (32, 29546), (38, 29609), (43, 29711),

Gene: Kaine\_40 Start: 29416, Stop: 30081, Start Num: 8

Candidate Starts for Kaine\_40:

(Start: 8 @29416 has 39 MA's), (Start: 9 @29431 has 19 MA's), (20, 29659), (22, 29716), (23, 29722), (24, 29743), (25, 29752), (29, 29812), (30, 29815), (32, 29824), (38, 29887), (39, 29908), (43, 29989), (44, 30010),

Gene: Katalie\_39 Start: 28378, Stop: 29028, Start Num: 9

Candidate Starts for Katalie\_39:

(Start: 8 @28363 has 39 MA's), (Start: 9 @28378 has 19 MA's), (10, 28381), (20, 28606), (22, 28663), (23, 28669), (24, 28690), (25, 28699), (29, 28759), (32, 28771), (34, 28780), (35, 28789), (38, 28834), (39, 28855), (43, 28936), (44, 28957), (48, 29005),

Gene: Lauchelly\_30 Start: 21377, Stop: 20706, Start Num: 6

Candidate Starts for Lauchelly\_30:

(Start: 6 @21377 has 33 MA's), (19, 21164), (20, 21125), (25, 21032), (26, 21023), (27, 21002), (29, 20972), (41, 20837), (43, 20795), (47, 20738), (49, 20717),

Gene: Leviosa\_30 Start: 21373, Stop: 20702, Start Num: 6

Candidate Starts for Leviosa\_30:

(Start: 6 @21373 has 33 MA's), (19, 21160), (20, 21121), (22, 21064), (25, 21028), (26, 21019), (27, 20998), (29, 20968), (41, 20833), (43, 20791), (47, 20734), (49, 20713),

Gene: Lika\_39 Start: 28635, Stop: 29300, Start Num: 8

Candidate Starts for Lika\_39:

(Start: 8 @28635 has 39 MA's), (Start: 9 @28650 has 19 MA's), (10, 28653), (17, 28794), (20, 28878), (22, 28935), (23, 28941), (24, 28962), (25, 28971), (28, 29007), (29, 29031), (32, 29043), (34, 29052), (35, 29061), (38, 29106), (39, 29127), (43, 29208), (44, 29229), (48, 29277),

Gene: LilBandit\_30 Start: 21167, Stop: 20496, Start Num: 6

Candidate Starts for LilBandit\_30:

(Start: 6 @21167 has 33 MA's), (19, 20954), (20, 20915), (22, 20858), (25, 20822), (26, 20813), (27, 20792), (29, 20762), (41, 20627), (43, 20585), (47, 20528), (49, 20507),

Gene: Loofah\_40 Start: 29235, Stop: 29897, Start Num: 7

Candidate Starts for Loofah\_40:

(Start: 7 @29235 has 33 MA's), (11, 29283), (14, 29346), (15, 29376), (18, 29436), (20, 29481), (24, 29565), (25, 29574), (37, 29685), (38, 29709), (39, 29730), (44, 29829), (45, 29844), (46, 29865),

Gene: Lorelei\_40 Start: 28695, Stop: 29360, Start Num: 8

Candidate Starts for Lorelei\_40:

(Start: 8 @28695 has 39 MA's), (Start: 9 @28710 has 19 MA's), (10, 28713), (17, 28854), (20, 28938), (22, 28995), (23, 29001), (24, 29022), (29, 29091), (30, 29094), (32, 29103), (34, 29112), (35, 29121), (38, 29166), (39, 29187), (43, 29268), (44, 29289), (48, 29337),

Gene: Maneekul\_39 Start: 28214, Stop: 28879, Start Num: 8

Candidate Starts for Maneekul\_39:

(Start: 8 @28214 has 39 MA's), (Start: 9 @28229 has 19 MA's), (10, 28232), (20, 28457), (22, 28514), (23, 28520), (24, 28541), (28, 28586), (29, 28610), (32, 28622), (34, 28631), (35, 28640), (38, 28685), (39, 28706), (43, 28787), (44, 28808), (48, 28856),

Gene: Marav\_43 Start: 29789, Stop: 30451, Start Num: 7

Candidate Starts for Marav\_43:

(Start: 7 @29789 has 33 MA's), (11, 29837), (12, 29852), (13, 29873), (15, 29930), (18, 29990), (20, 30035), (24, 30119), (37, 30239), (38, 30263), (39, 30284), (48, 30431),

Gene: Moyashi\_30 Start: 21139, Stop: 20468, Start Num: 6

Candidate Starts for Moyashi\_30:

(Start: 6 @21139 has 33 MA's), (19, 20926), (20, 20887), (25, 20794), (26, 20785), (27, 20764), (29, 20734), (41, 20599), (43, 20557), (47, 20500), (49, 20479),

Gene: Nabi\_40 Start: 28695, Stop: 29360, Start Num: 8

Candidate Starts for Nabi\_40:

(Start: 8 @28695 has 39 MA's), (Start: 9 @28710 has 19 MA's), (10, 28713), (17, 28854), (20, 28938), (22, 28995), (23, 29001), (24, 29022), (29, 29091), (30, 29094), (32, 29103), (34, 29112), (35, 29121), (38, 29166), (39, 29187), (43, 29268), (44, 29289), (48, 29337),

Gene: Nanodon\_41 Start: 28466, Stop: 29131, Start Num: 8

Candidate Starts for Nanodon\_41:

(Start: 8 @28466 has 39 MA's), (Start: 9 @28481 has 19 MA's), (10, 28484), (20, 28709), (22, 28766), (23, 28772), (24, 28793), (25, 28802), (28, 28838), (29, 28862), (32, 28874), (34, 28883), (35, 28892), (38, 28937), (39, 28958), (43, 29039), (44, 29060), (48, 29108),

Gene: Nishikigoi\_41 Start: 29074, Stop: 29736, Start Num: 7

Candidate Starts for Nishikigoi\_41:

(3, 28807), (Start: 7 @29074 has 33 MA's), (11, 29122), (14, 29185), (18, 29275), (20, 29320), (24, 29404), (37, 29524), (38, 29548), (39, 29569), (43, 29650), (44, 29668), (45, 29683), (48, 29716),

Gene: Oliynyk\_40 Start: 28177, Stop: 28842, Start Num: 8

Candidate Starts for Oliynyk\_40:

(Start: 8 @28177 has 39 MA's), (Start: 9 @28192 has 19 MA's), (10, 28195), (17, 28336), (20, 28420), (22, 28477), (23, 28483), (24, 28504), (25, 28513), (28, 28549), (29, 28573), (32, 28585), (33, 28588), (34, 28594), (35, 28603), (38, 28648), (39, 28669), (43, 28750), (44, 28771), (48, 28819),

Gene: Omar\_42 Start: 29302, Stop: 29964, Start Num: 7

Candidate Starts for Omar\_42:

(2, 28975), (3, 29032), (Start: 7 @29302 has 33 MA's), (11, 29350), (14, 29413), (18, 29503), (24, 29632), (37, 29752), (38, 29776), (39, 29797), (43, 29878), (45, 29911),

Gene: Ouroboros\_30 Start: 21354, Stop: 20683, Start Num: 6

Candidate Starts for Ouroboros\_30:

(Start: 6 @21354 has 33 MA's), (19, 21141), (20, 21102), (25, 21009), (26, 21000), (27, 20979), (29, 20949), (41, 20814), (43, 20772), (47, 20715), (49, 20694),

Gene: Ozzie\_39 Start: 27815, Stop: 28465, Start Num: 9

Candidate Starts for Ozzie\_39:

(Start: 8 @27800 has 39 MA's), (Start: 9 @27815 has 19 MA's), (10, 27818), (17, 27959), (20, 28043), (22, 28100), (23, 28106), (24, 28127), (25, 28136), (28, 28172), (29, 28196), (32, 28208), (34, 28217), (35, 28226), (38, 28271), (43, 28373), (44, 28394), (48, 28442),

Gene: OzzyJ\_40 Start: 28180, Stop: 28845, Start Num: 8

Candidate Starts for OzzyJ\_40:

(Start: 8 @28180 has 39 MA's), (Start: 9 @28195 has 19 MA's), (10, 28198), (17, 28339), (20, 28423), (22, 28480), (23, 28486), (24, 28507), (28, 28552), (29, 28576), (32, 28588), (34, 28597), (35, 28606), (38, 28651), (39, 28672), (43, 28753), (44, 28774), (48, 28822),

Gene: P1.1\_30 Start: 21372, Stop: 20701, Start Num: 6

Candidate Starts for P1.1\_30:

(Start: 6 @21372 has 33 MA's), (19, 21159), (20, 21120), (22, 21063), (25, 21027), (26, 21018), (27, 20997), (29, 20967), (41, 20832), (43, 20790), (47, 20733), (49, 20712),

Gene: P100A\_30 Start: 21359, Stop: 20688, Start Num: 6

Candidate Starts for P100A\_30:

(Start: 6 @21359 has 33 MA's), (19, 21146), (22, 21050), (25, 21014), (26, 21005), (27, 20984), (29, 20954), (41, 20819), (43, 20777), (44, 20756), (47, 20720), (49, 20699),

Gene: P101A\_30 Start: 21378, Stop: 20707, Start Num: 6

Candidate Starts for P101A\_30:

(Start: 6 @21378 has 33 MA's), (19, 21165), (20, 21126), (22, 21069), (25, 21033), (26, 21024), (27, 21003), (29, 20973), (41, 20838), (43, 20796), (47, 20739), (49, 20718),

Gene: P104A\_30 Start: 21147, Stop: 20476, Start Num: 6

Candidate Starts for P104A\_30:

(Start: 6 @21147 has 33 MA's), (19, 20934), (20, 20895), (22, 20838), (25, 20802), (26, 20793), (27, 20772), (29, 20742), (41, 20607), (43, 20565), (47, 20508), (49, 20487),

Gene: P104B\_30 Start: 21342, Stop: 20671, Start Num: 6

Candidate Starts for P104B\_30:

(Start: 6 @21342 has 33 MA's), (19, 21129), (20, 21090), (22, 21033), (25, 20997), (26, 20988), (27, 20967), (29, 20937), (41, 20802), (47, 20703), (49, 20682),

Gene: P105\_30 Start: 21007, Stop: 20336, Start Num: 6

Candidate Starts for P105\_30:

(Start: 6 @21007 has 33 MA's), (19, 20794), (20, 20755), (25, 20662), (26, 20653), (27, 20632), (29, 20602), (41, 20467), (47, 20368), (49, 20347),

Gene: P106A\_30 Start: 21433, Stop: 20762, Start Num: 6

Candidate Starts for P106A\_30:

(Start: 6 @21433 has 33 MA's), (19, 21220), (20, 21181), (25, 21088), (26, 21079), (29, 21028), (41, 20893), (43, 20851), (47, 20794), (49, 20773),

Gene: P106C\_31 Start: 21371, Stop: 20700, Start Num: 6

Candidate Starts for P106C\_31:

(Start: 6 @21371 has 33 MA's), (19, 21158), (20, 21119), (25, 21026), (26, 21017), (29, 20966), (41, 20831), (43, 20789), (47, 20732), (49, 20711),

Gene: P106I\_30 Start: 21200, Stop: 20529, Start Num: 6  
Candidate Starts for P106I\_30:  
(Start: 6 @21200 has 33 MA's), (19, 20987), (20, 20948), (25, 20855), (26, 20846), (29, 20795), (41, 20660), (43, 20618), (47, 20561), (49, 20540),

Gene: P106L\_30 Start: 21371, Stop: 20700, Start Num: 6  
Candidate Starts for P106L\_30:  
(Start: 6 @21371 has 33 MA's), (19, 21158), (20, 21119), (25, 21026), (26, 21017), (29, 20966), (41, 20831), (43, 20789), (47, 20732), (49, 20711),

Gene: P106M\_30 Start: 21371, Stop: 20700, Start Num: 6  
Candidate Starts for P106M\_30:  
(Start: 6 @21371 has 33 MA's), (19, 21158), (20, 21119), (25, 21026), (26, 21017), (29, 20966), (41, 20831), (43, 20789), (47, 20732), (49, 20711),

Gene: P107A\_30 Start: 21387, Stop: 20716, Start Num: 6  
Candidate Starts for P107A\_30:  
(Start: 6 @21387 has 33 MA's), (19, 21174), (20, 21135), (25, 21042), (26, 21033), (27, 21012), (29, 20982), (41, 20847), (47, 20748), (49, 20727),

Gene: P107C\_30 Start: 21324, Stop: 20653, Start Num: 6  
Candidate Starts for P107C\_30:  
(Start: 6 @21324 has 33 MA's), (20, 21072), (25, 20979), (26, 20970), (27, 20949), (31, 20913), (41, 20784), (43, 20742), (47, 20685), (49, 20664),

Gene: P108C\_30 Start: 21338, Stop: 20667, Start Num: 6  
Candidate Starts for P108C\_30:  
(Start: 6 @21338 has 33 MA's), (19, 21125), (20, 21086), (25, 20993), (26, 20984), (27, 20963), (29, 20933), (41, 20798), (43, 20756), (47, 20699), (49, 20678),

Gene: P9.1\_30 Start: 21368, Stop: 20697, Start Num: 6  
Candidate Starts for P9.1\_30:  
(Start: 6 @21368 has 33 MA's), (19, 21155), (20, 21116), (25, 21023), (26, 21014), (29, 20963), (41, 20828), (43, 20786), (47, 20729), (49, 20708),

Gene: PAD20\_31 Start: 21112, Stop: 20441, Start Num: 6  
Candidate Starts for PAD20\_31:  
(Start: 6 @21112 has 33 MA's), (19, 20899), (20, 20860), (22, 20803), (25, 20767), (26, 20758), (27, 20737), (29, 20707), (41, 20572), (43, 20530), (47, 20473), (49, 20452),

Gene: PHL010M04\_30 Start: 21406, Stop: 20681, Start Num: 4  
Candidate Starts for PHL010M04\_30:  
(Start: 4 @21406 has 1 MA's), (5, 21403), (Start: 6 @21352 has 33 MA's), (19, 21139), (20, 21100), (25, 21007), (26, 20998), (27, 20977), (29, 20947), (41, 20812), (43, 20770), (47, 20713), (49, 20692),

Gene: PHL037M02\_30 Start: 21390, Stop: 20665, Start Num: 4  
Candidate Starts for PHL037M02\_30:  
(Start: 4 @21390 has 1 MA's), (Start: 6 @21336 has 33 MA's), (19, 21123), (20, 21084), (25, 20991), (26, 20982), (27, 20961), (29, 20931), (41, 20796), (43, 20754), (47, 20697), (49, 20676),

Gene: PHL060L00\_30 Start: 21182, Stop: 20511, Start Num: 6  
Candidate Starts for PHL060L00\_30:

(Start: 6 @21182 has 33 MA's), (19, 20969), (20, 20930), (25, 20837), (26, 20828), (29, 20777), (41, 20642), (43, 20600), (47, 20543), (49, 20522),

Gene: PHL071N05\_30 Start: 21361, Stop: 20690, Start Num: 6

Candidate Starts for PHL071N05\_30:

(Start: 6 @21361 has 33 MA's), (19, 21148), (20, 21109), (25, 21016), (26, 21007), (27, 20986), (29, 20956), (41, 20821), (43, 20779), (47, 20722), (49, 20701),

Gene: PHL111M01\_30 Start: 21059, Stop: 20388, Start Num: 6

Candidate Starts for PHL111M01\_30:

(Start: 6 @21059 has 33 MA's), (19, 20846), (20, 20807), (25, 20714), (26, 20705), (27, 20684), (29, 20654), (41, 20519), (47, 20420), (49, 20399),

Gene: PHL113M01\_30 Start: 21108, Stop: 20437, Start Num: 6

Candidate Starts for PHL113M01\_30:

(Start: 6 @21108 has 33 MA's), (19, 20895), (20, 20856), (25, 20763), (26, 20754), (27, 20733), (29, 20703), (41, 20568), (47, 20469), (49, 20448),

Gene: PHL114L00\_30 Start: 21324, Stop: 20653, Start Num: 6

Candidate Starts for PHL114L00\_30:

(Start: 6 @21324 has 33 MA's), (19, 21111), (20, 21072), (22, 21015), (25, 20979), (26, 20970), (27, 20949), (29, 20919), (41, 20784), (43, 20742), (47, 20685), (49, 20664),

Gene: Pablito\_39 Start: 28612, Stop: 29271, Start Num: 7

Candidate Starts for Pablito\_39:

(Start: 7 @28612 has 33 MA's), (11, 28660), (14, 28723), (18, 28813), (24, 28942), (37, 29062), (38, 29086), (39, 29107), (43, 29188), (48, 29254),

Gene: Paedore\_39 Start: 29220, Stop: 29882, Start Num: 7

Candidate Starts for Paedore\_39:

(Start: 7 @29220 has 33 MA's), (11, 29268), (14, 29331), (15, 29361), (18, 29421), (20, 29466), (24, 29550), (25, 29559), (37, 29670), (38, 29694), (39, 29715), (44, 29814), (45, 29829), (46, 29850),

Gene: Paolo\_42 Start: 29646, Stop: 30308, Start Num: 7

Candidate Starts for Paolo\_42:

(Start: 7 @29646 has 33 MA's), (11, 29694), (12, 29709), (13, 29730), (15, 29787), (18, 29847), (24, 29976), (37, 30096), (38, 30120), (46, 30276), (48, 30288),

Gene: Pavo\_41 Start: 29874, Stop: 30539, Start Num: 8

Candidate Starts for Pavo\_41:

(Start: 8 @29874 has 39 MA's), (Start: 9 @29889 has 19 MA's), (20, 30117), (22, 30174), (23, 30180), (24, 30201), (25, 30210), (29, 30270), (30, 30273), (32, 30282), (38, 30345), (39, 30366), (43, 30447), (44, 30468),

Gene: Phettuccine\_39 Start: 27816, Stop: 28481, Start Num: 8

Candidate Starts for Phettuccine\_39:

(Start: 8 @27816 has 39 MA's), (Start: 9 @27831 has 19 MA's), (10, 27834), (17, 27975), (20, 28059), (22, 28116), (23, 28122), (24, 28143), (25, 28152), (28, 28188), (29, 28212), (32, 28224), (34, 28233), (35, 28242), (38, 28287), (43, 28389), (44, 28410), (48, 28458),

Gene: Procrass1\_30 Start: 21331, Stop: 20660, Start Num: 6

Candidate Starts for Procrass1\_30:

(Start: 6 @21331 has 33 MA's), (19, 21118), (20, 21079), (25, 20986), (26, 20977), (29, 20926), (41, 20791), (43, 20749), (47, 20692), (49, 20671),

Gene: Provolone\_41 Start: 29256, Stop: 29921, Start Num: 8

Candidate Starts for Provolone\_41:

(Start: 8 @29256 has 39 MA's), (Start: 9 @29271 has 19 MA's), (20, 29499), (22, 29556), (23, 29562), (24, 29583), (25, 29592), (29, 29652), (30, 29655), (32, 29664), (38, 29727), (39, 29748), (43, 29829), (44, 29850),

Gene: Puginator\_42 Start: 29667, Stop: 30329, Start Num: 7

Candidate Starts for Puginator\_42:

(Start: 7 @29667 has 33 MA's), (11, 29715), (12, 29730), (13, 29751), (15, 29808), (18, 29868), (24, 29997), (37, 30117), (38, 30141), (46, 30297), (48, 30309),

Gene: QueenBey\_30 Start: 21314, Stop: 20643, Start Num: 6

Candidate Starts for QueenBey\_30:

(Start: 6 @21314 has 33 MA's), (19, 21101), (20, 21062), (25, 20969), (26, 20960), (27, 20939), (29, 20909), (41, 20774), (43, 20732), (47, 20675), (49, 20654),

Gene: R4\_40 Start: 29375, Stop: 30037, Start Num: 7

Candidate Starts for R4\_40:

(Start: 7 @29375 has 33 MA's), (11, 29423), (14, 29486), (15, 29516), (18, 29576), (20, 29621), (24, 29705), (25, 29714), (37, 29825), (38, 29849), (44, 29969), (45, 29984), (46, 30005),

Gene: Rana\_40 Start: 28695, Stop: 29360, Start Num: 8

Candidate Starts for Rana\_40:

(Start: 8 @28695 has 39 MA's), (Start: 9 @28710 has 19 MA's), (10, 28713), (17, 28854), (20, 28938), (22, 28995), (23, 29001), (24, 29022), (29, 29091), (30, 29094), (32, 29103), (34, 29112), (35, 29121), (38, 29166), (39, 29187), (43, 29268), (44, 29289), (48, 29337),

Gene: RedBear\_40 Start: 28378, Stop: 29028, Start Num: 9

Candidate Starts for RedBear\_40:

(Start: 8 @28363 has 39 MA's), (Start: 9 @28378 has 19 MA's), (10, 28381), (20, 28606), (22, 28663), (23, 28669), (24, 28690), (25, 28699), (29, 28759), (32, 28771), (34, 28780), (35, 28789), (38, 28834), (39, 28855), (43, 28936), (44, 28957), (48, 29005),

Gene: Rileysaurus\_30 Start: 21416, Stop: 20691, Start Num: 4

Candidate Starts for Rileysaurus\_30:

(Start: 4 @21416 has 1 MA's), (Start: 6 @21362 has 33 MA's), (19, 21149), (20, 21110), (25, 21017), (26, 21008), (27, 20987), (29, 20957), (41, 20822), (43, 20780), (44, 20759), (47, 20723), (49, 20702),

Gene: SKKY\_30 Start: 21113, Stop: 20442, Start Num: 6

Candidate Starts for SKKY\_30:

(Start: 6 @21113 has 33 MA's), (19, 20900), (20, 20861), (22, 20804), (25, 20768), (26, 20759), (29, 20708), (41, 20573), (43, 20531), (47, 20474), (49, 20453),

Gene: Saftant\_40 Start: 29828, Stop: 30493, Start Num: 8

Candidate Starts for Saftant\_40:

(Start: 8 @29828 has 39 MA's), (Start: 9 @29843 has 19 MA's), (20, 30071), (22, 30128), (23, 30134), (24, 30155), (25, 30164), (29, 30224), (30, 30227), (32, 30236), (38, 30299), (44, 30422), (48, 30470),

Gene: SarahRose\_39 Start: 28203, Stop: 28853, Start Num: 9

Candidate Starts for SarahRose\_39:

(Start: 8 @28188 has 39 MA's), (Start: 9 @28203 has 19 MA's), (10, 28206), (17, 28347), (20, 28431), (22, 28488), (23, 28494), (24, 28515), (28, 28560), (29, 28584), (32, 28596), (34, 28605), (35, 28614), (38, 28659), (39, 28680), (43, 28761), (44, 28782), (48, 28830),

Gene: Snorlax\_39 Start: 28207, Stop: 28857, Start Num: 9

Candidate Starts for Snorlax\_39:

(Start: 8 @28192 has 39 MA's), (Start: 9 @28207 has 19 MA's), (10, 28210), (17, 28351), (20, 28435), (22, 28492), (23, 28498), (24, 28519), (28, 28564), (29, 28588), (32, 28600), (34, 28609), (35, 28618), (38, 28663), (39, 28684), (43, 28765), (44, 28786), (48, 28834),

Gene: Solid\_30 Start: 21344, Stop: 20673, Start Num: 6

Candidate Starts for Solid\_30:

(Start: 6 @21344 has 33 MA's), (19, 21131), (20, 21092), (25, 20999), (26, 20990), (27, 20969), (29, 20939), (41, 20804), (42, 20768), (43, 20762), (47, 20705), (49, 20684),

Gene: South40\_39 Start: 28378, Stop: 29028, Start Num: 9

Candidate Starts for South40\_39:

(Start: 8 @28363 has 39 MA's), (Start: 9 @28378 has 19 MA's), (10, 28381), (20, 28606), (22, 28663), (23, 28669), (24, 28690), (25, 28699), (29, 28759), (32, 28771), (34, 28780), (35, 28789), (38, 28834), (39, 28855), (43, 28936), (44, 28957), (48, 29005),

Gene: Speedwell\_45 Start: 31124, Stop: 31789, Start Num: 8

Candidate Starts for Speedwell\_45:

(Start: 8 @31124 has 39 MA's), (Start: 9 @31139 has 19 MA's), (14, 31232), (20, 31367), (22, 31424), (23, 31430), (24, 31451), (29, 31520), (32, 31532), (36, 31556), (38, 31595), (39, 31616), (44, 31718),

Gene: SqueakyClean\_39 Start: 29137, Stop: 29796, Start Num: 7

Candidate Starts for SqueakyClean\_39:

(Start: 7 @29137 has 33 MA's), (11, 29185), (14, 29248), (18, 29338), (24, 29467), (37, 29587), (38, 29611), (39, 29632), (43, 29713),

Gene: Sudan\_40 Start: 29703, Stop: 30368, Start Num: 8

Candidate Starts for Sudan\_40:

(Start: 8 @29703 has 39 MA's), (Start: 9 @29718 has 19 MA's), (20, 29946), (22, 30003), (23, 30009), (24, 30030), (25, 30039), (29, 30099), (30, 30102), (32, 30111), (38, 30174), (39, 30195), (43, 30276), (44, 30297),

Gene: Sujidade\_40 Start: 28920, Stop: 29585, Start Num: 8

Candidate Starts for Sujidade\_40:

(Start: 8 @28920 has 39 MA's), (Start: 9 @28935 has 19 MA's), (10, 28938), (20, 29163), (22, 29220), (23, 29226), (24, 29247), (25, 29256), (28, 29292), (29, 29316), (32, 29328), (34, 29337), (35, 29346), (38, 29391), (39, 29412), (43, 29493), (44, 29514), (48, 29562),

Gene: SunkenRoot\_41 Start: 30422, Stop: 30979, Start Num: 14

Candidate Starts for SunkenRoot\_41:

(Start: 8 @30314 has 39 MA's), (Start: 9 @30329 has 19 MA's), (14, 30422), (20, 30557), (22, 30614), (23, 30620), (24, 30641), (25, 30650), (29, 30710), (30, 30713), (32, 30722), (38, 30785), (43, 30887), (44, 30908),

Gene: Supernova\_30 Start: 21115, Stop: 20444, Start Num: 6

Candidate Starts for Supernova\_30:

(Start: 6 @21115 has 33 MA's), (19, 20902), (20, 20863), (25, 20770), (26, 20761), (27, 20740), (29, 20710), (41, 20575), (43, 20533), (47, 20476), (49, 20455),

Gene: Superstar\_43 Start: 30182, Stop: 30844, Start Num: 7

Candidate Starts for Superstar\_43:

(Start: 7 @30182 has 33 MA's), (11, 30230), (14, 30293), (18, 30383), (24, 30512), (25, 30521), (37, 30632), (38, 30656), (39, 30677), (44, 30776), (45, 30791), (46, 30812), (48, 30824),

Gene: TagePhighter\_41 Start: 28207, Stop: 28857, Start Num: 9

Candidate Starts for TagePhighter\_41:

(Start: 8 @28192 has 39 MA's), (Start: 9 @28207 has 19 MA's), (10, 28210), (17, 28351), (20, 28435), (22, 28492), (23, 28498), (24, 28519), (28, 28564), (29, 28588), (32, 28600), (34, 28609), (35, 28618), (38, 28663), (39, 28684), (43, 28765), (44, 28786), (48, 28834),

Gene: Tefunt\_41 Start: 29076, Stop: 29738, Start Num: 7

Candidate Starts for Tefunt\_41:

(3, 28809), (Start: 7 @29076 has 33 MA's), (11, 29124), (14, 29187), (18, 29277), (20, 29322), (24, 29406), (37, 29526), (38, 29550), (39, 29571), (43, 29652), (44, 29670), (45, 29685), (48, 29718),

Gene: Thestral\_41 Start: 29271, Stop: 29933, Start Num: 7

Candidate Starts for Thestral\_41:

(Start: 7 @29271 has 33 MA's), (11, 29319), (12, 29334), (14, 29382), (18, 29472), (20, 29517), (24, 29601), (37, 29721), (38, 29745), (39, 29766), (45, 29880), (46, 29901), (48, 29913),

Gene: TinaBelcher\_40 Start: 29218, Stop: 29880, Start Num: 7

Candidate Starts for TinaBelcher\_40:

(Start: 7 @29218 has 33 MA's), (11, 29266), (12, 29281), (14, 29329), (18, 29419), (20, 29464), (24, 29548), (37, 29668), (38, 29692), (45, 29827), (46, 29848), (48, 29860),

Gene: Toma\_39 Start: 28637, Stop: 29302, Start Num: 8

Candidate Starts for Toma\_39:

(Start: 8 @28637 has 39 MA's), (Start: 9 @28652 has 19 MA's), (10, 28655), (20, 28880), (22, 28937), (23, 28943), (24, 28964), (25, 28973), (28, 29009), (29, 29033), (32, 29045), (34, 29054), (35, 29063), (38, 29108), (39, 29129), (43, 29210), (44, 29231), (48, 29279),

Gene: Triste\_39 Start: 28195, Stop: 28845, Start Num: 9

Candidate Starts for Triste\_39:

(Start: 8 @28180 has 39 MA's), (Start: 9 @28195 has 19 MA's), (10, 28198), (17, 28339), (20, 28423), (22, 28480), (23, 28486), (24, 28507), (28, 28552), (29, 28576), (32, 28588), (34, 28597), (35, 28606), (38, 28651), (39, 28672), (43, 28753), (44, 28774), (48, 28822),

Gene: Triumph\_41 Start: 28968, Stop: 29630, Start Num: 7

Candidate Starts for Triumph\_41:

(1, 28524), (2, 28641), (3, 28698), (Start: 7 @28968 has 33 MA's), (11, 29016), (12, 29031), (13, 29052), (14, 29079), (18, 29169), (20, 29214), (24, 29298), (37, 29418), (38, 29442), (43, 29544), (44, 29562),

Gene: TrvxScott\_39 Start: 29264, Stop: 29926, Start Num: 7

Candidate Starts for TrvxScott\_39:

(Start: 7 @29264 has 33 MA's), (11, 29312), (12, 29327), (14, 29375), (18, 29465), (20, 29510), (24, 29594), (37, 29714), (38, 29738), (45, 29873), (46, 29894), (48, 29906),

Gene: Urza\_41 Start: 28667, Stop: 29332, Start Num: 8

Candidate Starts for Urza\_41:

(Start: 8 @28667 has 39 MA's), (Start: 9 @28682 has 19 MA's), (16, 28823), (22, 28967), (29, 29063), (38, 29138), (43, 29240), (44, 29261), (45, 29276),

Gene: Verse\_40 Start: 30508, Stop: 31173, Start Num: 8

Candidate Starts for Verse\_40:

(Start: 8 @30508 has 39 MA's), (Start: 9 @30523 has 19 MA's), (14, 30616), (20, 30751), (22, 30808), (23, 30814), (24, 30835), (25, 30844), (29, 30904), (30, 30907), (32, 30916), (38, 30979), (43, 31081), (44, 31102),

Gene: Werner\_39 Start: 28205, Stop: 28855, Start Num: 9

Candidate Starts for Werner\_39:

(Start: 8 @28190 has 39 MA's), (Start: 9 @28205 has 19 MA's), (10, 28208), (17, 28349), (20, 28433), (22, 28490), (23, 28496), (24, 28517), (28, 28562), (29, 28586), (32, 28598), (34, 28607), (35, 28616), (38, 28661), (39, 28682), (43, 28763), (44, 28784), (48, 28832),

Gene: Whatever\_39 Start: 28190, Stop: 28855, Start Num: 8

Candidate Starts for Whatever\_39:

(Start: 8 @28190 has 39 MA's), (Start: 9 @28205 has 19 MA's), (10, 28208), (17, 28349), (20, 28433), (22, 28490), (23, 28496), (24, 28517), (28, 28562), (29, 28586), (32, 28598), (34, 28607), (35, 28616), (38, 28661), (39, 28682), (43, 28763), (44, 28784), (48, 28832),

Gene: Wizzo\_30 Start: 20840, Stop: 20169, Start Num: 6

Candidate Starts for Wizzo\_30:

(Start: 6 @20840 has 33 MA's), (19, 20627), (20, 20588), (22, 20531), (25, 20495), (26, 20486), (27, 20465), (29, 20435), (41, 20300), (43, 20258), (47, 20201), (49, 20180),

Gene: Yasdni\_39 Start: 28242, Stop: 28907, Start Num: 8

Candidate Starts for Yasdni\_39:

(Start: 8 @28242 has 39 MA's), (Start: 9 @28257 has 19 MA's), (10, 28260), (20, 28485), (22, 28542), (23, 28548), (24, 28569), (28, 28614), (29, 28638), (32, 28650), (34, 28659), (35, 28668), (38, 28713), (39, 28734), (43, 28815), (44, 28836), (48, 28884),

Gene: Yosif\_42 Start: 30304, Stop: 30969, Start Num: 8

Candidate Starts for Yosif\_42:

(Start: 8 @30304 has 39 MA's), (Start: 9 @30319 has 19 MA's), (12, 30364), (22, 30604), (26, 30649), (29, 30700), (38, 30775), (43, 30877), (44, 30898),

Gene: Zainub\_42 Start: 29607, Stop: 30269, Start Num: 7

Candidate Starts for Zainub\_42:

(Start: 7 @29607 has 33 MA's), (11, 29655), (12, 29670), (13, 29691), (15, 29748), (18, 29808), (24, 29937), (37, 30057), (38, 30081), (46, 30237), (48, 30249),

Gene: ZamZam\_40 Start: 29801, Stop: 30466, Start Num: 8

Candidate Starts for ZamZam\_40:

(Start: 8 @29801 has 39 MA's), (Start: 9 @29816 has 19 MA's), (14, 29909), (20, 30044), (22, 30101), (23, 30107), (24, 30128), (25, 30137), (29, 30197), (30, 30200), (32, 30209), (38, 30272), (44, 30395), (48, 30443),

Gene: Zemlya\_41 Start: 28738, Stop: 29403, Start Num: 8

Candidate Starts for Zemlya\_41:

(Start: 8 @28738 has 39 MA's), (Start: 9 @28753 has 19 MA's), (10, 28756), (20, 28981), (22, 29038), (23, 29044), (24, 29065), (25, 29074), (28, 29110), (29, 29134), (32, 29146), (34, 29155), (35, 29164), (38, 29209), (39, 29230), (43, 29311), (44, 29332), (48, 29380),

