



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 303329 Report

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

Pham number 303329 has 72 members, 14 are drafts.

Phages represented in each track:

- Track 1 : EastWest\_14
- Track 2 : Franzy\_12, Brent\_12
- Track 3 : NathanVaag\_12, Piccoletto\_12
- Track 4 : King2\_12
- Track 5 : Jawnski\_12
- Track 6 : Beans\_12
- Track 7 : GravityBall\_13, LeeroyJ\_13, StevieBAY\_13, Timinator\_13
- Track 8 : Sicarius2\_14
- Track 9 : Grekaycon\_13, Jordan\_13, BossLady\_13, Martha\_13, Zartrosa\_13, TaeYoung\_13
- Track 10 : Shade\_13, JKerns\_13, Sonny\_13
- Track 11 : Pippa\_13
- Track 12 : Wyborn\_14
- Track 13 : BigDome\_13
- Track 14 : BarretLemon\_13
- Track 15 : Abba\_12
- Track 16 : Nostromo\_12
- Track 17 : KBurrousTX\_16
- Track 18 : Chubster\_16, JaNo\_16, RosiePosie\_16, Chipper1996\_160, EdgarPoe\_16, Linus\_16, Tophat\_16, Mordred\_16, HumptyDumpty\_16, JayCookie\_16, MoyaNatalis\_16, Chocolat\_16, Kabreeze\_16, PrincessTrina\_16, Scavito\_16, Conboy\_16
- Track 19 : Colucci\_15
- Track 20 : Lymara\_16
- Track 21 : DrYang\_16
- Track 22 : ArV1\_013
- Track 23 : Prairie\_12, Bolt007\_12, Klevey\_12
- Track 24 : CalWood4100\_12, Lilmac1015\_12
- Track 25 : Altadena\_12
- Track 26 : Circuit\_12
- Track 27 : Nandito\_12
- Track 28 : Bumble\_12
- Track 29 : BlackJade\_18
- Track 30 : Music\_14, Gooberta\_14, GoldDust\_14
- Track 31 : SunnyJune\_14
- Track 32 : Orkz\_16
- Track 33 : Hirko\_13

- Track 34 : Vitus\_14
- Track 35 : Jinkies\_14
- Track 36 : AirForce1\_13
- Track 37 : Divya\_13
- Track 38 : Vibaki\_14
- Track 39 : Bubbykins\_15
- Track 40 : Lukepolites\_12

**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 37 of the 58 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AirForce1\_13, Altadena\_12, ArV1\_013, Beans\_12, BlackJade\_18, Bolt007\_12, Brent\_12, Bubbykins\_15, Bumble\_12, CalWood4100\_12, Chipper1996\_160, Chocolat\_16, Chubster\_16, Circuit\_12, Colucci\_15, Conboy\_16, Divya\_13, DrYang\_16, EdgarPoe\_16, Franzy\_12, GoldDust\_14, Gooberta\_14, Hirko\_13, HumptyDumpty\_16, JaNo\_16, JayCookie\_16, Jinkies\_14, KBurroustX\_16, Kabreeze\_16, King2\_12, Klevey\_12, Lilmac1015\_12, Linus\_16, Lymara\_16, Mordred\_16, MoyaNatalis\_16, Music\_14, Nandito\_12, NathanVaag\_12, Orkz\_16, Piccoletto\_12, Prairie\_12, PrincessTrina\_16, RosiePosie\_16, Scavito\_16, SunnyJune\_14, Tophat\_16, Vibaki\_14, Vitus\_14,

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

- Jawnski\_12,

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

- Abba\_12, BarretLemon\_13, BigDome\_13, BossLady\_13, EastWest\_14, GravityBall\_13, Grekaycon\_13, JKerns\_13, Jordan\_13, LeeroyJ\_13, Lukepolites\_12, Martha\_13, Nostromo\_12, Pippa\_13, Shade\_13, Sicarius2\_14, Sonny\_13, StevieBAY\_13, TaeYoung\_13, Timinator\_13, Wyborn\_14, Zartrosa\_13,

**Summary by start number:**

Start 3:

- Found in 2 of 72 ( 2.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Lukepolites\_12 (singleton),

Start 4:

- Found in 23 of 72 ( 31.9% ) of genes in pham
- Manual Annotations of this start: 20 of 58
- Called 91.3% of time when present
- Phage (with cluster) where this start called: Abba\_12 (AO3), BarretLemon\_13 (AO2), BigDome\_13 (AO2), BossLady\_13 (AO2), EastWest\_14 (AO), GravityBall\_13 (AO2), Grekaycon\_13 (AO2), JKerns\_13 (AO2), Jordan\_13 (AO2), LeeroyJ\_13 (AO2), Martha\_13 (AO2), Nostromo\_12 (AO3), Pippa\_13 (AO2), Shade\_13 (AO2), Sicarius2\_14 (AO2), Sonny\_13 (AO2), StevieBAY\_13 (AO2), TaeYoung\_13 (AO2),

Timinator\_13 (AO2), Wyborn\_14 (AO2), Zartrosa\_13 (AO2),

Start 5:

- Found in 50 of 72 ( 69.4% ) of genes in pham
- Manual Annotations of this start: 37 of 58
- Called 98.0% of time when present
- Phage (with cluster) where this start called: AirForce1\_13 (FL), Altadena\_12 (FH), ArV1\_013 (AR), Beans\_12 (AO1), BlackJade\_18 (FL), Bolt007\_12 (FH), Brent\_12 (AO1), Bubbykins\_15 (UNK), Bumble\_12 (FH), CalWood4100\_12 (FH), Chipper1996\_160 (AR), Chocolat\_16 (AR), Chubster\_16 (AR), Circuit\_12 (FH), Colucci\_15 (AR), Conboy\_16 (AR), Divya\_13 (FL), DrYang\_16 (AR), EdgarPoe\_16 (AR), Franzy\_12 (AO1), GoldDust\_14 (FL), Gooberta\_14 (FL), Hirko\_13 (FL), HumptyDumpty\_16 (AR), JaNo\_16 (AR), JayCookie\_16 (AR), Jinkies\_14 (FL), KBurrousTX\_16 (AR), Kabreeze\_16 (AR), King2\_12 (AO1), Klevey\_12 (FH), Lilmac1015\_12 (FH), Linus\_16 (AR), Lymara\_16 (AR), Mordred\_16 (AR), MoyaNatalis\_16 (AR), Music\_14 (FL), Nandito\_12 (FH), NathanVaag\_12 (AO1), Orkz\_16 (FL), Piccoletto\_12 (AO1), Prairie\_12 (FH), PrincessTrina\_16 (AR), RosiePosie\_16 (AR), Scavito\_16 (AR), SunnyJune\_14 (FL), Tophat\_16 (AR), Vibaki\_14 (FL), Vitus\_14 (FL),

Start 14:

- Found in 24 of 72 ( 33.3% ) of genes in pham
- Manual Annotations of this start: 1 of 58
- Called 4.2% of time when present
- Phage (with cluster) where this start called: Jawnski\_12 (AO1),

### Summary by clusters:

There are 9 clusters represented in this pham: singleton, AO, AR, AO3, AO2, AO1, FH, UNK, FL,

Info for manual annotations of cluster AO:

- Start number 4 was manually annotated 1 time for cluster AO.

Info for manual annotations of cluster AO1:

- Start number 5 was manually annotated 6 times for cluster AO1.
- Start number 14 was manually annotated 1 time for cluster AO1.

Info for manual annotations of cluster AO2:

- Start number 4 was manually annotated 17 times for cluster AO2.

Info for manual annotations of cluster AO3:

- Start number 4 was manually annotated 2 times for cluster AO3.

Info for manual annotations of cluster AR:

- Start number 5 was manually annotated 19 times for cluster AR.

Info for manual annotations of cluster FH:

- Start number 5 was manually annotated 7 times for cluster FH.

Info for manual annotations of cluster FL:

- Start number 5 was manually annotated 5 times for cluster FL.

**Gene Information:**

Gene: Abba\_12 Start: 9766, Stop: 10383, Start Num: 4

Candidate Starts for Abba\_12:

(Start: 4 @9766 has 20 MA's), (Start: 14 @9820 has 1 MA's), (16, 9838), (20, 9874), (37, 9994), (40, 10039), (49, 10087), (50, 10099), (54, 10120), (61, 10189), (73, 10285), (80, 10336),

Gene: AirForce1\_13 Start: 9296, Stop: 9889, Start Num: 5

Candidate Starts for AirForce1\_13:

(Start: 5 @9296 has 37 MA's), (7, 9314), (8, 9326), (21, 9407), (26, 9437), (33, 9479), (39, 9563), (44, 9584), (52, 9638), (68, 9773),

Gene: Altadena\_12 Start: 9444, Stop: 10073, Start Num: 5

Candidate Starts for Altadena\_12:

(Start: 5 @9444 has 37 MA's), (30, 9618), (31, 9621), (38, 9696), (41, 9720), (44, 9732), (48, 9762), (56, 9804), (87, 10029),

Gene: ArV1\_013 Start: 10331, Stop: 10948, Start Num: 5

Candidate Starts for ArV1\_013:

(Start: 5 @10331 has 37 MA's), (7, 10349), (9, 10364), (18, 10424), (30, 10505), (32, 10511), (33, 10514), (36, 10553), (39, 10598), (44, 10619), (45, 10634), (47, 10646), (53, 10682), (65, 10778), (72, 10841), (75, 10862), (79, 10895), (82, 10904),

Gene: BarretLemon\_13 Start: 9981, Stop: 10592, Start Num: 4

Candidate Starts for BarretLemon\_13:

(Start: 4 @9981 has 20 MA's), (9, 10014), (13, 10032), (Start: 14 @10035 has 1 MA's), (29, 10131), (33, 10164), (39, 10248), (50, 10314), (54, 10335), (69, 10467),

Gene: Beans\_12 Start: 9671, Stop: 10282, Start Num: 5

Candidate Starts for Beans\_12:

(Start: 5 @9671 has 37 MA's), (11, 9713), (Start: 14 @9725 has 1 MA's), (19, 9770), (29, 9821), (30, 9845), (53, 10022), (57, 10040), (63, 10109), (69, 10160), (74, 10193), (82, 10238),

Gene: BigDome\_13 Start: 9969, Stop: 10580, Start Num: 4

Candidate Starts for BigDome\_13:

(Start: 4 @9969 has 20 MA's), (9, 10002), (13, 10020), (Start: 14 @10023 has 1 MA's), (29, 10119), (33, 10152), (39, 10236), (50, 10302), (69, 10455),

Gene: BlackJade\_18 Start: 11634, Stop: 12230, Start Num: 5

Candidate Starts for BlackJade\_18:

(Start: 5 @11634 has 37 MA's), (7, 11652), (40, 11907), (59, 12036), (60, 12045), (68, 12111),

Gene: Bolt007\_12 Start: 9386, Stop: 9970, Start Num: 5

Candidate Starts for Bolt007\_12:

(Start: 5 @9386 has 37 MA's), (18, 9479), (30, 9560), (31, 9563), (44, 9674),

Gene: BossLady\_13 Start: 9985, Stop: 10593, Start Num: 4

Candidate Starts for BossLady\_13:

(Start: 4 @9985 has 20 MA's), (9, 10018), (13, 10036), (Start: 14 @10039 has 1 MA's), (16, 10057), (19, 10084), (29, 10135), (33, 10168), (39, 10252), (50, 10318), (69, 10471), (81, 10546), (83, 10552),

Gene: Brent\_12 Start: 9653, Stop: 10264, Start Num: 5

Candidate Starts for Brent\_12:

(Start: 5 @9653 has 37 MA's), (11, 9695), (17, 9728), (24, 9776), (29, 9803), (30, 9827), (34, 9842), (39, 9920), (49, 9974), (53, 10004), (57, 10022), (63, 10091), (69, 10142),

Gene: Bubbykins\_15 Start: 11542, Stop: 12165, Start Num: 5

Candidate Starts for Bubbykins\_15:

(Start: 5 @11542 has 37 MA's), (7, 11560), (11, 11584), (Start: 14 @11596 has 1 MA's), (17, 11617), (18, 11635), (25, 11668), (30, 11716), (32, 11722), (33, 11725), (37, 11770), (39, 11809), (40, 11815), (42, 11821), (44, 11830), (46, 11851), (47, 11857), (55, 11899), (61, 11965), (63, 11986), (69, 12034), (70, 12040), (81, 12118),

Gene: Bumble\_12 Start: 9451, Stop: 10071, Start Num: 5

Candidate Starts for Bumble\_12:

(Start: 5 @9451 has 37 MA's), (30, 9625), (31, 9628), (41, 9727), (44, 9739),

Gene: CalWood4100\_12 Start: 9369, Stop: 9953, Start Num: 5

Candidate Starts for CalWood4100\_12:

(Start: 4 @9366 has 20 MA's), (Start: 5 @9369 has 37 MA's), (18, 9462), (30, 9543), (31, 9546), (44, 9657),

Gene: Chipper1996\_160 Start: 11980, Stop: 12597, Start Num: 5

Candidate Starts for Chipper1996\_160:

(Start: 5 @11980 has 37 MA's), (9, 12013), (18, 12073), (32, 12160), (33, 12163), (39, 12247), (44, 12268), (45, 12283), (53, 12331), (63, 12418), (65, 12427), (72, 12490), (73, 12493), (77, 12532), (82, 12553),

Gene: Chocolat\_16 Start: 11981, Stop: 12598, Start Num: 5

Candidate Starts for Chocolat\_16:

(Start: 5 @11981 has 37 MA's), (9, 12014), (18, 12074), (32, 12161), (33, 12164), (39, 12248), (44, 12269), (45, 12284), (53, 12332), (63, 12419), (65, 12428), (72, 12491), (73, 12494), (77, 12533), (82, 12554),

Gene: Chubster\_16 Start: 11751, Stop: 12368, Start Num: 5

Candidate Starts for Chubster\_16:

(Start: 5 @11751 has 37 MA's), (9, 11784), (18, 11844), (32, 11931), (33, 11934), (39, 12018), (44, 12039), (45, 12054), (53, 12102), (63, 12189), (65, 12198), (72, 12261), (73, 12264), (77, 12303), (82, 12324),

Gene: Circuit\_12 Start: 9437, Stop: 10057, Start Num: 5

Candidate Starts for Circuit\_12:

(1, 9146), (2, 9176), (Start: 5 @9437 has 37 MA's), (31, 9614), (41, 9713), (44, 9725), (56, 9797),

Gene: Colucci\_15 Start: 11482, Stop: 12099, Start Num: 5

Candidate Starts for Colucci\_15:

(3, 11455), (Start: 5 @11482 has 37 MA's), (7, 11500), (8, 11512), (9, 11515), (17, 11557), (26, 11623), (32, 11662), (33, 11665), (36, 11704), (39, 11749), (40, 11755), (42, 11761), (44, 11770), (53, 11833), (55, 11839), (59, 11884), (63, 11920),

Gene: Conboy\_16 Start: 11979, Stop: 12596, Start Num: 5

Candidate Starts for Conboy\_16:

(Start: 5 @11979 has 37 MA's), (9, 12012), (18, 12072), (32, 12159), (33, 12162), (39, 12246), (44, 12267), (45, 12282), (53, 12330), (63, 12417), (65, 12426), (72, 12489), (73, 12492), (77, 12531), (82, 12552),

Gene: Divya\_13 Start: 9185, Stop: 9778, Start Num: 5

Candidate Starts for Divya\_13:

(Start: 5 @9185 has 37 MA's), (7, 9203), (20, 9293), (23, 9305), (32, 9365), (33, 9368), (47, 9500), (49, 9506), (51, 9521), (58, 9563), (68, 9662),

Gene: DrYang\_16 Start: 11935, Stop: 12552, Start Num: 5

Candidate Starts for DrYang\_16:

(Start: 5 @11935 has 37 MA's), (6, 11938), (Start: 14 @11989 has 1 MA's), (18, 12028), (20, 12043), (22, 12052), (33, 12118), (35, 12142), (39, 12202), (44, 12223), (45, 12238), (47, 12250), (53, 12286), (62, 12355), (63, 12373), (65, 12382), (72, 12445), (73, 12448), (82, 12508),

Gene: EastWest\_14 Start: 10015, Stop: 10626, Start Num: 4

Candidate Starts for EastWest\_14:

(Start: 4 @10015 has 20 MA's), (9, 10048), (22, 10132), (28, 10162), (33, 10198), (39, 10282), (53, 10366), (65, 10459), (69, 10501), (76, 10555), (83, 10585),

Gene: EdgarPoe\_16 Start: 11979, Stop: 12596, Start Num: 5

Candidate Starts for EdgarPoe\_16:

(Start: 5 @11979 has 37 MA's), (9, 12012), (18, 12072), (32, 12159), (33, 12162), (39, 12246), (44, 12267), (45, 12282), (53, 12330), (63, 12417), (65, 12426), (72, 12489), (73, 12492), (77, 12531), (82, 12552),

Gene: Franzy\_12 Start: 9653, Stop: 10264, Start Num: 5

Candidate Starts for Franzy\_12:

(Start: 5 @9653 has 37 MA's), (11, 9695), (17, 9728), (24, 9776), (29, 9803), (30, 9827), (34, 9842), (39, 9920), (49, 9974), (53, 10004), (57, 10022), (63, 10091), (69, 10142),

Gene: GoldDust\_14 Start: 11572, Stop: 12159, Start Num: 5

Candidate Starts for GoldDust\_14:

(Start: 5 @11572 has 37 MA's), (7, 11590), (8, 11602), (10, 11608), (15, 11638), (39, 11839), (44, 11860), (68, 12049), (74, 12088), (85, 12133),

Gene: Gooberta\_14 Start: 11572, Stop: 12159, Start Num: 5

Candidate Starts for Gooberta\_14:

(Start: 5 @11572 has 37 MA's), (7, 11590), (8, 11602), (10, 11608), (15, 11638), (39, 11839), (44, 11860), (68, 12049), (74, 12088), (85, 12133),

Gene: GravityBall\_13 Start: 9980, Stop: 10591, Start Num: 4

Candidate Starts for GravityBall\_13:

(Start: 4 @9980 has 20 MA's), (9, 10013), (13, 10031), (Start: 14 @10034 has 1 MA's), (29, 10130), (33, 10163), (39, 10247), (50, 10313), (69, 10466),

Gene: Grekaycon\_13 Start: 9994, Stop: 10602, Start Num: 4

Candidate Starts for Grekaycon\_13:

(Start: 4 @9994 has 20 MA's), (9, 10027), (13, 10045), (Start: 14 @10048 has 1 MA's), (16, 10066), (19, 10093), (29, 10144), (33, 10177), (39, 10261), (50, 10327), (69, 10480), (81, 10555), (83, 10561),

Gene: Hirko\_13 Start: 10995, Stop: 11594, Start Num: 5

Candidate Starts for Hirko\_13:

(Start: 5 @10995 has 37 MA's), (8, 11025), (10, 11031), (15, 11061), (39, 11262), (68, 11472), (74, 11511),

Gene: HumptyDumpty\_16 Start: 11978, Stop: 12595, Start Num: 5

Candidate Starts for HumptyDumpty\_16:

(Start: 5 @11978 has 37 MA's), (9, 12011), (18, 12071), (32, 12158), (33, 12161), (39, 12245), (44, 12266), (45, 12281), (53, 12329), (63, 12416), (65, 12425), (72, 12488), (73, 12491), (77, 12530), (82, 12551),

Gene: JKerns\_13 Start: 10021, Stop: 10629, Start Num: 4

Candidate Starts for JKerns\_13:

(Start: 4 @10021 has 20 MA's), (9, 10054), (13, 10072), (Start: 14 @10075 has 1 MA's), (16, 10093), (19, 10120), (29, 10171), (33, 10204), (39, 10288), (50, 10354), (69, 10507), (81, 10582), (83, 10588), (86, 10603),

Gene: JaNo\_16 Start: 11978, Stop: 12595, Start Num: 5

Candidate Starts for JaNo\_16:

(Start: 5 @11978 has 37 MA's), (9, 12011), (18, 12071), (32, 12158), (33, 12161), (39, 12245), (44, 12266), (45, 12281), (53, 12329), (63, 12416), (65, 12425), (72, 12488), (73, 12491), (77, 12530), (82, 12551),

Gene: Jawnski\_12 Start: 9720, Stop: 10277, Start Num: 14

Candidate Starts for Jawnski\_12:

(Start: 5 @9666 has 37 MA's), (11, 9708), (Start: 14 @9720 has 1 MA's), (19, 9765), (29, 9816), (30, 9840), (33, 9849), (49, 9987), (53, 10017), (57, 10035), (63, 10104), (69, 10155), (74, 10188), (82, 10233),

Gene: JayCookie\_16 Start: 11981, Stop: 12598, Start Num: 5

Candidate Starts for JayCookie\_16:

(Start: 5 @11981 has 37 MA's), (9, 12014), (18, 12074), (32, 12161), (33, 12164), (39, 12248), (44, 12269), (45, 12284), (53, 12332), (63, 12419), (65, 12428), (72, 12491), (73, 12494), (77, 12533), (82, 12554),

Gene: Jinkies\_14 Start: 10297, Stop: 10890, Start Num: 5

Candidate Starts for Jinkies\_14:

(Start: 5 @10297 has 37 MA's), (7, 10315), (21, 10408), (26, 10438), (33, 10480), (39, 10564), (44, 10585), (52, 10639), (61, 10714), (68, 10774),

Gene: Jordan\_13 Start: 9991, Stop: 10599, Start Num: 4

Candidate Starts for Jordan\_13:

(Start: 4 @9991 has 20 MA's), (9, 10024), (13, 10042), (Start: 14 @10045 has 1 MA's), (16, 10063), (19, 10090), (29, 10141), (33, 10174), (39, 10258), (50, 10324), (69, 10477), (81, 10552), (83, 10558),

Gene: KBurrousTX\_16 Start: 11752, Stop: 12375, Start Num: 5

Candidate Starts for KBurrousTX\_16:

(Start: 5 @11752 has 37 MA's), (9, 11785), (12, 11797), (18, 11845), (29, 11908), (32, 11938), (33, 11941), (39, 12025), (40, 12031), (42, 12037), (44, 12046), (45, 12061), (47, 12073), (51, 12094), (53, 12109), (66, 12223), (70, 12250), (82, 12331), (84, 12337),

Gene: Kabreeze\_16 Start: 11978, Stop: 12595, Start Num: 5

Candidate Starts for Kabreeze\_16:

(Start: 5 @11978 has 37 MA's), (9, 12011), (18, 12071), (32, 12158), (33, 12161), (39, 12245), (44, 12266), (45, 12281), (53, 12329), (63, 12416), (65, 12425), (72, 12488), (73, 12491), (77, 12530), (82,

12551),

Gene: King2\_12 Start: 9655, Stop: 10266, Start Num: 5

Candidate Starts for King2\_12:

(Start: 5 @9655 has 37 MA's), (11, 9697), (17, 9730), (19, 9754), (24, 9778), (29, 9805), (30, 9829), (34, 9844), (39, 9922), (49, 9976), (53, 10006), (57, 10024), (63, 10093), (69, 10144),

Gene: Klevey\_12 Start: 9379, Stop: 9963, Start Num: 5

Candidate Starts for Klevey\_12:

(Start: 5 @9379 has 37 MA's), (18, 9472), (30, 9553), (31, 9556), (44, 9667),

Gene: LeeroyJ\_13 Start: 9980, Stop: 10591, Start Num: 4

Candidate Starts for LeeroyJ\_13:

(Start: 4 @9980 has 20 MA's), (9, 10013), (13, 10031), (Start: 14 @10034 has 1 MA's), (29, 10130), (33, 10163), (39, 10247), (50, 10313), (69, 10466),

Gene: Lilmac1015\_12 Start: 9369, Stop: 9953, Start Num: 5

Candidate Starts for Lilmac1015\_12:

(Start: 4 @9366 has 20 MA's), (Start: 5 @9369 has 37 MA's), (18, 9462), (30, 9543), (31, 9546), (44, 9657),

Gene: Linus\_16 Start: 11978, Stop: 12595, Start Num: 5

Candidate Starts for Linus\_16:

(Start: 5 @11978 has 37 MA's), (9, 12011), (18, 12071), (32, 12158), (33, 12161), (39, 12245), (44, 12266), (45, 12281), (53, 12329), (63, 12416), (65, 12425), (72, 12488), (73, 12491), (77, 12530), (82, 12551),

Gene: Lukepolites\_12 Start: 9685, Stop: 10311, Start Num: 3

Candidate Starts for Lukepolites\_12:

(3, 9685), (27, 9853), (31, 9886), (41, 9985), (42, 9988), (51, 10045),

Gene: Lymara\_16 Start: 11980, Stop: 12597, Start Num: 5

Candidate Starts for Lymara\_16:

(Start: 5 @11980 has 37 MA's), (9, 12013), (18, 12073), (32, 12160), (33, 12163), (35, 12187), (39, 12247), (44, 12268), (45, 12283), (47, 12295), (53, 12331), (62, 12400), (63, 12418), (65, 12427), (72, 12490), (77, 12532), (82, 12553),

Gene: Martha\_13 Start: 9932, Stop: 10540, Start Num: 4

Candidate Starts for Martha\_13:

(Start: 4 @9932 has 20 MA's), (9, 9965), (13, 9983), (Start: 14 @9986 has 1 MA's), (16, 10004), (19, 10031), (29, 10082), (33, 10115), (39, 10199), (50, 10265), (69, 10418), (81, 10493), (83, 10499),

Gene: Mordred\_16 Start: 11978, Stop: 12595, Start Num: 5

Candidate Starts for Mordred\_16:

(Start: 5 @11978 has 37 MA's), (9, 12011), (18, 12071), (32, 12158), (33, 12161), (39, 12245), (44, 12266), (45, 12281), (53, 12329), (63, 12416), (65, 12425), (72, 12488), (73, 12491), (77, 12530), (82, 12551),

Gene: MoyaNatalis\_16 Start: 11981, Stop: 12598, Start Num: 5

Candidate Starts for MoyaNatalis\_16:

(Start: 5 @11981 has 37 MA's), (9, 12014), (18, 12074), (32, 12161), (33, 12164), (39, 12248), (44, 12269), (45, 12284), (53, 12332), (63, 12419), (65, 12428), (72, 12491), (73, 12494), (77, 12533), (82, 12554),

Gene: Music\_14 Start: 11442, Stop: 12029, Start Num: 5

Candidate Starts for Music\_14:

(Start: 5 @11442 has 37 MA's), (7, 11460), (8, 11472), (10, 11478), (15, 11508), (39, 11709), (44, 11730), (68, 11919), (74, 11958), (85, 12003),

Gene: Nandito\_12 Start: 9394, Stop: 10050, Start Num: 5

Candidate Starts for Nandito\_12:

(Start: 5 @9394 has 37 MA's), (31, 9583), (41, 9682), (42, 9685), (44, 9694), (88, 10018), (89, 10033),

Gene: NathanVaag\_12 Start: 9659, Stop: 10270, Start Num: 5

Candidate Starts for NathanVaag\_12:

(Start: 5 @9659 has 37 MA's), (11, 9701), (Start: 14 @9713 has 1 MA's), (19, 9758), (29, 9809), (30, 9833), (33, 9842), (49, 9980), (53, 10010), (57, 10028), (63, 10097), (69, 10148), (74, 10181), (82, 10226),

Gene: Nostromo\_12 Start: 9970, Stop: 10587, Start Num: 4

Candidate Starts for Nostromo\_12:

(Start: 4 @9970 has 20 MA's), (Start: 14 @10024 has 1 MA's), (16, 10042), (20, 10078), (32, 10150), (37, 10198), (43, 10255), (49, 10291), (50, 10303), (54, 10324), (61, 10393), (64, 10420),

Gene: Orkz\_16 Start: 10061, Stop: 10657, Start Num: 5

Candidate Starts for Orkz\_16:

(Start: 5 @10061 has 37 MA's), (7, 10079), (25, 10187), (32, 10241), (40, 10334), (52, 10403), (59, 10463), (60, 10472), (68, 10538),

Gene: Piccoletto\_12 Start: 9660, Stop: 10271, Start Num: 5

Candidate Starts for Piccoletto\_12:

(Start: 5 @9660 has 37 MA's), (11, 9702), (Start: 14 @9714 has 1 MA's), (19, 9759), (29, 9810), (30, 9834), (33, 9843), (49, 9981), (53, 10011), (57, 10029), (63, 10098), (69, 10149), (74, 10182), (82, 10227),

Gene: Pippa\_13 Start: 10030, Stop: 10638, Start Num: 4

Candidate Starts for Pippa\_13:

(1, 9739), (Start: 4 @10030 has 20 MA's), (9, 10063), (13, 10081), (Start: 14 @10084 has 1 MA's), (29, 10180), (33, 10213), (39, 10297), (50, 10363), (69, 10516), (83, 10597),

Gene: Prairie\_12 Start: 9376, Stop: 9960, Start Num: 5

Candidate Starts for Prairie\_12:

(Start: 5 @9376 has 37 MA's), (18, 9469), (30, 9550), (31, 9553), (44, 9664),

Gene: PrincessTrina\_16 Start: 11981, Stop: 12598, Start Num: 5

Candidate Starts for PrincessTrina\_16:

(Start: 5 @11981 has 37 MA's), (9, 12014), (18, 12074), (32, 12161), (33, 12164), (39, 12248), (44, 12269), (45, 12284), (53, 12332), (63, 12419), (65, 12428), (72, 12491), (73, 12494), (77, 12533), (82, 12554),

Gene: RosiePosie\_16 Start: 11981, Stop: 12598, Start Num: 5

Candidate Starts for RosiePosie\_16:

(Start: 5 @11981 has 37 MA's), (9, 12014), (18, 12074), (32, 12161), (33, 12164), (39, 12248), (44, 12269), (45, 12284), (53, 12332), (63, 12419), (65, 12428), (72, 12491), (73, 12494), (77, 12533), (82, 12554),

Gene: Scavito\_16 Start: 11978, Stop: 12595, Start Num: 5

Candidate Starts for Scavito\_16:

(Start: 5 @11978 has 37 MA's), (9, 12011), (18, 12071), (32, 12158), (33, 12161), (39, 12245), (44, 12266), (45, 12281), (53, 12329), (63, 12416), (65, 12425), (72, 12488), (73, 12491), (77, 12530), (82, 12551),

Gene: Shade\_13 Start: 9970, Stop: 10578, Start Num: 4

Candidate Starts for Shade\_13:

(Start: 4 @9970 has 20 MA's), (9, 10003), (13, 10021), (Start: 14 @10024 has 1 MA's), (16, 10042), (19, 10069), (29, 10120), (33, 10153), (39, 10237), (50, 10303), (69, 10456), (81, 10531), (83, 10537), (86, 10552),

Gene: Sicarius2\_14 Start: 10472, Stop: 11083, Start Num: 4

Candidate Starts for Sicarius2\_14:

(Start: 4 @10472 has 20 MA's), (9, 10505), (33, 10655), (39, 10739), (49, 10793), (52, 10814), (76, 11009), (78, 11027),

Gene: Sonny\_13 Start: 9991, Stop: 10599, Start Num: 4

Candidate Starts for Sonny\_13:

(Start: 4 @9991 has 20 MA's), (9, 10024), (13, 10042), (Start: 14 @10045 has 1 MA's), (16, 10063), (19, 10090), (29, 10141), (33, 10174), (39, 10258), (50, 10324), (69, 10477), (81, 10552), (83, 10558), (86, 10573),

Gene: StevieBAY\_13 Start: 9980, Stop: 10591, Start Num: 4

Candidate Starts for StevieBAY\_13:

(Start: 4 @9980 has 20 MA's), (9, 10013), (13, 10031), (Start: 14 @10034 has 1 MA's), (29, 10130), (33, 10163), (39, 10247), (50, 10313), (69, 10466),

Gene: SunnyJune\_14 Start: 10679, Stop: 11272, Start Num: 5

Candidate Starts for SunnyJune\_14:

(Start: 5 @10679 has 37 MA's), (7, 10697), (15, 10745), (26, 10820), (33, 10862), (39, 10946), (44, 10967), (68, 11156),

Gene: TaeYoung\_13 Start: 9995, Stop: 10603, Start Num: 4

Candidate Starts for TaeYoung\_13:

(Start: 4 @9995 has 20 MA's), (9, 10028), (13, 10046), (Start: 14 @10049 has 1 MA's), (16, 10067), (19, 10094), (29, 10145), (33, 10178), (39, 10262), (50, 10328), (69, 10481), (81, 10556), (83, 10562),

Gene: Timinator\_13 Start: 9980, Stop: 10591, Start Num: 4

Candidate Starts for Timinator\_13:

(Start: 4 @9980 has 20 MA's), (9, 10013), (13, 10031), (Start: 14 @10034 has 1 MA's), (29, 10130), (33, 10163), (39, 10247), (50, 10313), (69, 10466),

Gene: Tophat\_16 Start: 11980, Stop: 12597, Start Num: 5

Candidate Starts for Tophat\_16:

(Start: 5 @11980 has 37 MA's), (9, 12013), (18, 12073), (32, 12160), (33, 12163), (39, 12247), (44, 12268), (45, 12283), (53, 12331), (63, 12418), (65, 12427), (72, 12490), (73, 12493), (77, 12532), (82, 12553),

Gene: Vibaki\_14 Start: 11451, Stop: 12038, Start Num: 5

Candidate Starts for Vibaki\_14:

(Start: 5 @11451 has 37 MA's), (8, 11481), (10, 11487), (15, 11517), (39, 11718), (44, 11739), (68, 11928), (85, 12012),

Gene: Vitus\_14 Start: 11253, Stop: 11843, Start Num: 5

Candidate Starts for Vitus\_14:

(Start: 5 @11253 has 37 MA's), (8, 11283), (19, 11352), (26, 11394), (67, 11727), (68, 11730), (71, 11745), (80, 11808),

Gene: Wyborn\_14 Start: 10333, Stop: 10944, Start Num: 4

Candidate Starts for Wyborn\_14:

(Start: 4 @10333 has 20 MA's), (9, 10366), (33, 10516), (39, 10600), (49, 10654), (52, 10675), (69, 10819), (76, 10870),

Gene: Zartrosa\_13 Start: 9994, Stop: 10602, Start Num: 4

Candidate Starts for Zartrosa\_13:

(Start: 4 @9994 has 20 MA's), (9, 10027), (13, 10045), (Start: 14 @10048 has 1 MA's), (16, 10066), (19, 10093), (29, 10144), (33, 10177), (39, 10261), (50, 10327), (69, 10480), (81, 10555), (83, 10561),