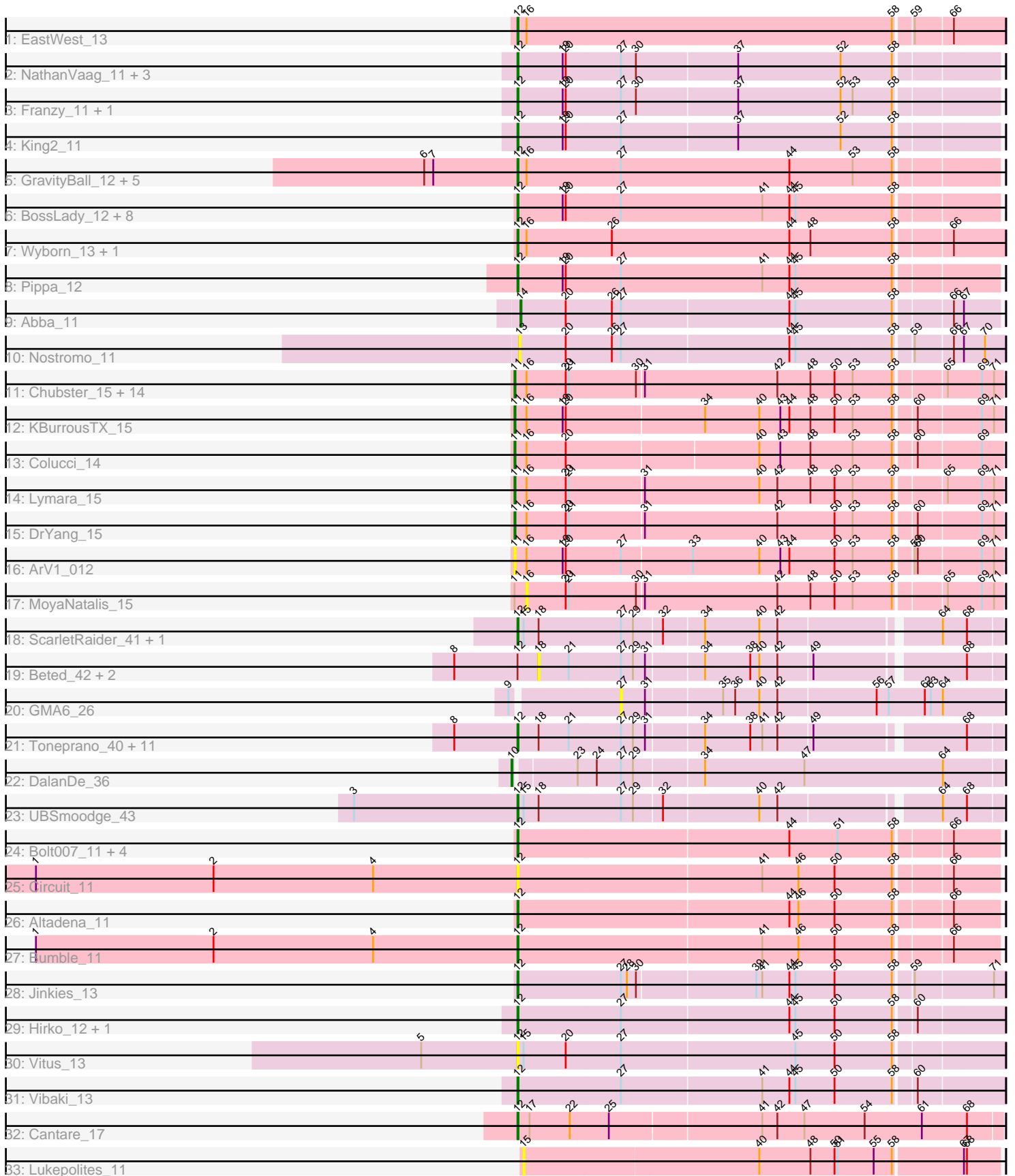


Pham 202865



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 202865 Report

This analysis was run 01/18/25 on database version 583.

Pham number 202865 has 84 members, 19 are drafts.

Phages represented in each track:

- Track 1 : EastWest\_13
- Track 2 : NathanVaag\_11, Piccoletto\_11, Jawnski\_11, Beans\_11
- Track 3 : Franzy\_11, Brent\_11
- Track 4 : King2\_11
- Track 5 : GravityBall\_12, LeeroyJ\_12, StevieBAY\_12, Timinator\_12, BigDome\_12, BarretLemon\_12
- Track 6 : BossLady\_12, Jordan\_12, Grekaycon\_12, Shade\_12, Zartrosa\_12, Martha\_12, Sonny\_12, TaeYoung\_12, JKerns\_12
- Track 7 : Wyborn\_13, Sicarius2\_13
- Track 8 : Pippa\_12
- Track 9 : Abba\_11
- Track 10 : Nostromo\_11
- Track 11 : Chubster\_15, HumptyDumpty\_15, RosiePosie\_15, Chipper1996\_150, EdgarPoe\_15, Linus\_15, Tophat\_15, Mordred\_15, JayCookie\_15, JaNo\_15, Chocolat\_15, Scavito\_15, Conboy\_15, PrincessTrina\_15, Kabreeze\_15
- Track 12 : KBurrousTX\_15
- Track 13 : Colucci\_14
- Track 14 : Lymara\_15
- Track 15 : DrYang\_15
- Track 16 : ArV1\_012
- Track 17 : MoyaNatalis\_15
- Track 18 : ScarletRaider\_41, FlyingTortilla\_41
- Track 19 : Beted\_42, Lenoshki\_42, Oogie\_42
- Track 20 : GMA6\_26
- Track 21 : Toneprano\_40, EmoNemo\_40, Gray\_42, Chidiebere\_42, ChisanaKitsune\_38, Schomber\_41, Hanem\_42, Twin\_40, Pakusa\_40, Alok\_40, Kabocha\_43, MintFritos\_40
- Track 22 : DalanDe\_36
- Track 23 : UBSmoodge\_43
- Track 24 : Bolt007\_11, Lilmac1015\_11, Prairie\_11, Klevey\_11, CalWood4100\_11
- Track 25 : Circuit\_11
- Track 26 : Altadena\_11
- Track 27 : Bumble\_11
- Track 28 : Jinkies\_13
- Track 29 : Hirko\_12, GoldDust\_13
- Track 30 : Vitus\_13
- Track 31 : Vibaki\_13

- Track 32 : Cantare\_17
- Track 33 : Lukepolites\_11

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

The start number called the most often in the published annotations is 12, it was called in 44 of the 65 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alok\_i\_40, Altadena\_11, BarretLemon\_12, Beans\_11, BigDome\_12, Bolt007\_11, BossLady\_12, Brent\_11, Bumble\_11, CalWood4100\_11, Cantare\_17, Chidiebere\_42, ChisanaKitsune\_38, Circuit\_11, EastWest\_13, EmoNemo\_40, FlyingTortilla\_41, Franzy\_11, GoldDust\_13, GravityBall\_12, Gray\_42, Grekaycon\_12, Hanem\_42, Hirko\_12, JKerns\_12, Jawnski\_11, Jinkies\_13, Jordan\_12, Kabocha\_43, King2\_11, Klevey\_11, LeeroyJ\_12, Lilmac1015\_11, Martha\_12, MintFritos\_40, NathanVaag\_11, Pakusa\_40, Piccoletto\_11, Pippa\_12, Prairie\_11, ScarletRaider\_41, Schomber\_41, Shade\_12, Sicarius2\_13, Sonny\_12, StevieBAY\_12, TaeYoung\_12, Timinator\_12, Toneprano\_40, Twin\_40, UBSmoodge\_43, Vibaki\_13, Vitus\_13, Wyborn\_13, Zartrosa\_12,

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

- Beted\_42, Lenoshki\_42, Oogie\_42,

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

- Abba\_11, ArV1\_012, Chipper1996\_150, Chocolat\_15, Chubster\_15, Colucci\_14, Conboy\_15, DalanDe\_36, DrYang\_15, EdgarPoe\_15, GMA6\_26, HumptyDumpty\_15, JaNo\_15, JayCookie\_15, KBurrousTX\_15, Kabreeze\_15, Linus\_15, Lukepolites\_11, Lymara\_15, Mordred\_15, MoyaNatalis\_15, Nostromo\_11, PrincessTrina\_15, RosiePosie\_15, Scavito\_15, Tophat\_15,

**Summary by start number:**

Start 10:

- Found in 1 of 84 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DalanDe\_36 (DQ),

Start 11:

- Found in 21 of 84 ( 25.0% ) of genes in pham
- Manual Annotations of this start: 19 of 65
- Called 95.2% of time when present
- Phage (with cluster) where this start called: ArV1\_012 (AR), Chipper1996\_150 (AR), Chocolat\_15 (AR), Chubster\_15 (AR), Colucci\_14 (AR), Conboy\_15 (AR), DrYang\_15 (AR), EdgarPoe\_15 (AR), HumptyDumpty\_15 (AR), JaNo\_15 (AR), JayCookie\_15 (AR), KBurrousTX\_15 (AR), Kabreeze\_15 (AR), Linus\_15 (AR), Lymara\_15 (AR), Mordred\_15 (AR), PrincessTrina\_15 (AR), RosiePosie\_15 (AR), Scavito\_15 (AR), Tophat\_15 (AR),

Start 12:

- Found in 58 of 84 ( 69.0% ) of genes in pham
- Manual Annotations of this start: 44 of 65
- Called 94.8% of time when present
- Phage (with cluster) where this start called: Alok\_i\_40 (DQ), Altadena\_11 (FH), BarretLemon\_12 (AO2), Beans\_11 (AO1), BigDome\_12 (AO2), Bolt007\_11 (FH), BossLady\_12 (AO2), Brent\_11 (AO1), Bumble\_11 (FH), CalWood4100\_11 (FH), Cantare\_17 (singleton), Chidiebere\_42 (DQ), ChisanaKitsune\_38 (DQ), Circuit\_11 (FH), EastWest\_13 (AO), EmoNemo\_40 (DQ), FlyingTortilla\_41 (DQ), Franzy\_11 (AO1), GoldDust\_13 (FL), GravityBall\_12 (AO2), Gray\_42 (DQ), Grekaycon\_12 (AO2), Hanem\_42 (DQ), Hirko\_12 (FL), JKerns\_12 (AO2), Jawnski\_11 (AO1), Jinkies\_13 (FL), Jordan\_12 (AO2), Kabocha\_43 (DQ), King2\_11 (AO1), Klevey\_11 (FH), LeeroyJ\_12 (AO2), Lilmac1015\_11 (FH), Martha\_12 (AO2), MintFritos\_40 (DQ), NathanVaag\_11 (AO1), Pakusa\_40 (DQ), Piccoletto\_11 (AO1), Pippa\_12 (AO2), Prairie\_11 (FH), ScarletRaider\_41 (DQ), Schomber\_41 (DQ), Shade\_12 (AO2), Sicarius2\_13 (AO2), Sonny\_12 (AO2), StevieBAY\_12 (AO2), TaeYoung\_12 (AO2), Timinator\_12 (AO2), Toneprano\_40 (DQ), Twin\_40 (DQ), UBSmoodge\_43 (DQ), Vibaki\_13 (FL), Vitus\_13 (FL), Wyborn\_13 (AO2), Zartrosa\_12 (AO2),

#### Start 13:

- Found in 1 of 84 ( 1.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Nostromo\_11 (AO3),

#### Start 14:

- Found in 1 of 84 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Abba\_11 (AO3),

#### Start 15:

- Found in 5 of 84 ( 6.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Lukepolites\_11 (singleton),

#### Start 16:

- Found in 30 of 84 ( 35.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 3.3% of time when present
- Phage (with cluster) where this start called: MoyaNatalis\_15 (AR),

#### Start 18:

- Found in 18 of 84 ( 21.4% ) of genes in pham
- No Manual Annotations of this start.
- Called 16.7% of time when present
- Phage (with cluster) where this start called: Beted\_42 (DQ), Lenoshki\_42 (DQ), Oogie\_42 (DQ),

#### Start 27:

- Found in 51 of 84 ( 60.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 2.0% of time when present

- Phage (with cluster) where this start called: GMA6\_26 (DQ),

### **Summary by clusters:**

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

Info for manual annotations of cluster AO:

- Start number 12 was manually annotated 1 time for cluster AO.

Info for manual annotations of cluster AO1:

- Start number 12 was manually annotated 7 times for cluster AO1.

Info for manual annotations of cluster AO2:

- Start number 12 was manually annotated 17 times for cluster AO2.

Info for manual annotations of cluster AO3:

- Start number 14 was manually annotated 1 time for cluster AO3.

Info for manual annotations of cluster AR:

- Start number 11 was manually annotated 19 times for cluster AR.

Info for manual annotations of cluster DQ:

- Start number 10 was manually annotated 1 time for cluster DQ.
- Start number 12 was manually annotated 9 times for cluster DQ.

Info for manual annotations of cluster FH:

- Start number 12 was manually annotated 6 times for cluster FH.

Info for manual annotations of cluster FL:

- Start number 12 was manually annotated 3 times for cluster FL.

### **Gene Information:**

Gene: Abba\_11 Start: 9301, Stop: 9762, Start Num: 14

Candidate Starts for Abba\_11:

(Start: 14 @9301 has 1 MA's), (20, 9346), (26, 9391), (27, 9400), (44, 9565), (45, 9571), (58, 9667), (66, 9718), (67, 9727),

Gene: Alok\_40 Start: 29827, Stop: 30282, Start Num: 12

Candidate Starts for Alok\_40:

(8, 29764), (Start: 12 @29827 has 44 MA's), (18, 29848), (21, 29878), (27, 29929), (29, 29941), (31, 29953), (34, 30007), (38, 30052), (41, 30064), (42, 30079), (49, 30112), (68, 30250),

Gene: Altadena\_11 Start: 8980, Stop: 9444, Start Num: 12

Candidate Starts for Altadena\_11:

(Start: 12 @8980 has 44 MA's), (44, 9247), (46, 9256), (50, 9292), (58, 9349), (66, 9400),

Gene: ArV1\_012 Start: 9861, Stop: 10331, Start Num: 11

Candidate Starts for ArV1\_012:

(Start: 11 @9861 has 19 MA's), (16, 9873), (19, 9909), (20, 9912), (27, 9966), (33, 10035), (40, 10101), (43, 10122), (44, 10131), (50, 10176), (53, 10194), (58, 10233), (59, 10248), (60, 10251), (69, 10311), (71, 10323),

Gene: BarretLemon\_12 Start: 9514, Stop: 9981, Start Num: 12

Candidate Starts for BarretLemon\_12:

(6, 9421), (7, 9430), (Start: 12 @9514 has 44 MA's), (16, 9523), (27, 9616), (44, 9784), (53, 9847), (58, 9886),

Gene: Beans\_11 Start: 9204, Stop: 9668, Start Num: 12

Candidate Starts for Beans\_11:

(Start: 12 @9204 has 44 MA's), (19, 9249), (20, 9252), (27, 9306), (30, 9321), (37, 9420), (52, 9522), (58, 9573),

Gene: Beted\_42 Start: 31528, Stop: 31962, Start Num: 18

Candidate Starts for Beted\_42:

(8, 31444), (Start: 12 @31507 has 44 MA's), (18, 31528), (21, 31558), (27, 31609), (29, 31621), (31, 31633), (34, 31687), (38, 31732), (40, 31741), (42, 31759), (49, 31792), (68, 31930),

Gene: BigDome\_12 Start: 9502, Stop: 9969, Start Num: 12

Candidate Starts for BigDome\_12:

(6, 9409), (7, 9418), (Start: 12 @9502 has 44 MA's), (16, 9511), (27, 9604), (44, 9772), (53, 9835), (58, 9874),

Gene: Bolt007\_11 Start: 8922, Stop: 9386, Start Num: 12

Candidate Starts for Bolt007\_11:

(Start: 12 @8922 has 44 MA's), (44, 9189), (51, 9237), (58, 9291), (66, 9342),

Gene: BossLady\_12 Start: 9517, Stop: 9984, Start Num: 12

Candidate Starts for BossLady\_12:

(Start: 12 @9517 has 44 MA's), (19, 9562), (20, 9565), (27, 9619), (41, 9760), (44, 9787), (45, 9793), (58, 9889),

Gene: Brent\_11 Start: 9186, Stop: 9650, Start Num: 12

Candidate Starts for Brent\_11:

(Start: 12 @9186 has 44 MA's), (19, 9231), (20, 9234), (27, 9288), (30, 9303), (37, 9402), (52, 9504), (53, 9516), (58, 9555),

Gene: Bumble\_11 Start: 8987, Stop: 9451, Start Num: 12

Candidate Starts for Bumble\_11:

(1, 8507), (2, 8684), (4, 8843), (Start: 12 @8987 has 44 MA's), (41, 9227), (46, 9263), (50, 9299), (58, 9356), (66, 9407),

Gene: CalWood4100\_11 Start: 8905, Stop: 9369, Start Num: 12

Candidate Starts for CalWood4100\_11:

(Start: 12 @8905 has 44 MA's), (44, 9172), (51, 9220), (58, 9274), (66, 9325),

Gene: Cantare\_17 Start: 16184, Stop: 16657, Start Num: 12

Candidate Starts for Cantare\_17:

(Start: 12 @16184 has 44 MA's), (17, 16196), (22, 16235), (25, 16274), (41, 16421), (42, 16436), (47, 16463), (54, 16523), (61, 16580), (68, 16625),

Gene: Chidiebere\_42 Start: 29827, Stop: 30282, Start Num: 12

Candidate Starts for Chidiebere\_42:

(8, 29764), (Start: 12 @29827 has 44 MA's), (18, 29848), (21, 29878), (27, 29929), (29, 29941), (31, 29953), (34, 30007), (38, 30052), (41, 30064), (42, 30079), (49, 30112), (68, 30250),

Gene: Chipper1996\_150 Start: 11510, Stop: 11980, Start Num: 11

Candidate Starts for Chipper1996\_150:

(Start: 11 @11510 has 19 MA's), (16, 11522), (20, 11561), (21, 11564), (30, 11630), (31, 11636), (42, 11768), (48, 11801), (50, 11825), (53, 11843), (58, 11882), (65, 11927), (69, 11960), (71, 11972),

Gene: ChisanaKitsune\_38 Start: 28618, Stop: 29073, Start Num: 12

Candidate Starts for ChisanaKitsune\_38:

(8, 28555), (Start: 12 @28618 has 44 MA's), (18, 28639), (21, 28669), (27, 28720), (29, 28732), (31, 28744), (34, 28798), (38, 28843), (41, 28855), (42, 28870), (49, 28903), (68, 29041),

Gene: Chocolat\_15 Start: 11511, Stop: 11981, Start Num: 11

Candidate Starts for Chocolat\_15:

(Start: 11 @11511 has 19 MA's), (16, 11523), (20, 11562), (21, 11565), (30, 11631), (31, 11637), (42, 11769), (48, 11802), (50, 11826), (53, 11844), (58, 11883), (65, 11928), (69, 11961), (71, 11973),

Gene: Chubster\_15 Start: 11281, Stop: 11751, Start Num: 11

Candidate Starts for Chubster\_15:

(Start: 11 @11281 has 19 MA's), (16, 11293), (20, 11332), (21, 11335), (30, 11401), (31, 11407), (42, 11539), (48, 11572), (50, 11596), (53, 11614), (58, 11653), (65, 11698), (69, 11731), (71, 11743),

Gene: Circuit\_11 Start: 8973, Stop: 9437, Start Num: 12

Candidate Starts for Circuit\_11:

(1, 8493), (2, 8670), (4, 8829), (Start: 12 @8973 has 44 MA's), (41, 9213), (46, 9249), (50, 9285), (58, 9342), (66, 9393),

Gene: Colucci\_14 Start: 11015, Stop: 11482, Start Num: 11

Candidate Starts for Colucci\_14:

(Start: 11 @11015 has 19 MA's), (16, 11027), (20, 11066), (40, 11252), (43, 11273), (48, 11303), (53, 11345), (58, 11384), (60, 11402), (69, 11462),

Gene: Conboy\_15 Start: 11509, Stop: 11979, Start Num: 11

Candidate Starts for Conboy\_15:

(Start: 11 @11509 has 19 MA's), (16, 11521), (20, 11560), (21, 11563), (30, 11629), (31, 11635), (42, 11767), (48, 11800), (50, 11824), (53, 11842), (58, 11881), (65, 11926), (69, 11959), (71, 11971),

Gene: DalanDe\_36 Start: 32484, Stop: 32954, Start Num: 10

Candidate Starts for DalanDe\_36:

(Start: 10 @32484 has 1 MA's), (23, 32541), (24, 32559), (27, 32583), (29, 32595), (34, 32661), (47, 32760), (64, 32898),

Gene: DrYang\_15 Start: 11464, Stop: 11934, Start Num: 11

Candidate Starts for DrYang\_15:

(Start: 11 @11464 has 19 MA's), (16, 11476), (20, 11515), (21, 11518), (31, 11590), (42, 11722), (50, 11779), (53, 11797), (58, 11836), (60, 11854), (69, 11914), (71, 11926),

Gene: EastWest\_13 Start: 9545, Stop: 10018, Start Num: 12

Candidate Starts for EastWest\_13:

(Start: 12 @9545 has 44 MA's), (16, 9554), (58, 9917), (59, 9932), (66, 9968),

Gene: EdgarPoe\_15 Start: 11509, Stop: 11979, Start Num: 11

Candidate Starts for EdgarPoe\_15:

(Start: 11 @11509 has 19 MA's), (16, 11521), (20, 11560), (21, 11563), (30, 11629), (31, 11635), (42, 11767), (48, 11800), (50, 11824), (53, 11842), (58, 11881), (65, 11926), (69, 11959), (71, 11971),

Gene: EmoNemo\_40 Start: 29827, Stop: 30282, Start Num: 12

Candidate Starts for EmoNemo\_40:

(8, 29764), (Start: 12 @29827 has 44 MA's), (18, 29848), (21, 29878), (27, 29929), (29, 29941), (31, 29953), (34, 30007), (38, 30052), (41, 30064), (42, 30079), (49, 30112), (68, 30250),

Gene: FlyingTortilla\_41 Start: 32692, Stop: 33147, Start Num: 12

Candidate Starts for FlyingTortilla\_41:

(Start: 12 @32692 has 44 MA's), (15, 32698), (18, 32713), (27, 32794), (29, 32806), (32, 32833), (34, 32872), (40, 32926), (42, 32944), (64, 33091), (68, 33115),

Gene: Franzy\_11 Start: 9186, Stop: 9650, Start Num: 12

Candidate Starts for Franzy\_11:

(Start: 12 @9186 has 44 MA's), (19, 9231), (20, 9234), (27, 9288), (30, 9303), (37, 9402), (52, 9504), (53, 9516), (58, 9555),

Gene: GMA6\_26 Start: 20625, Stop: 20996, Start Num: 27

Candidate Starts for GMA6\_26:

(9, 20523), (27, 20625), (31, 20649), (35, 20721), (36, 20733), (40, 20757), (42, 20775), (56, 20871), (57, 20883), (62, 20919), (63, 20925), (64, 20937),

Gene: GoldDust\_13 Start: 11102, Stop: 11572, Start Num: 12

Candidate Starts for GoldDust\_13:

(Start: 12 @11102 has 44 MA's), (27, 11204), (44, 11369), (45, 11375), (50, 11414), (58, 11471), (60, 11489),

Gene: GravityBall\_12 Start: 9513, Stop: 9980, Start Num: 12

Candidate Starts for GravityBall\_12:

(6, 9420), (7, 9429), (Start: 12 @9513 has 44 MA's), (16, 9522), (27, 9615), (44, 9783), (53, 9846), (58, 9885),

Gene: Gray\_42 Start: 29828, Stop: 30283, Start Num: 12

Candidate Starts for Gray\_42:

(8, 29765), (Start: 12 @29828 has 44 MA's), (18, 29849), (21, 29879), (27, 29930), (29, 29942), (31, 29954), (34, 30008), (38, 30053), (41, 30065), (42, 30080), (49, 30113), (68, 30251),

Gene: Grekaycon\_12 Start: 9526, Stop: 9993, Start Num: 12

Candidate Starts for Grekaycon\_12:

(Start: 12 @9526 has 44 MA's), (19, 9571), (20, 9574), (27, 9628), (41, 9769), (44, 9796), (45, 9802), (58, 9898),

Gene: Hanem\_42 Start: 29827, Stop: 30282, Start Num: 12

Candidate Starts for Hanem\_42:

(8, 29764), (Start: 12 @29827 has 44 MA's), (18, 29848), (21, 29878), (27, 29929), (29, 29941), (31, 29953), (34, 30007), (38, 30052), (41, 30064), (42, 30079), (49, 30112), (68, 30250),

Gene: Hirko\_12 Start: 10525, Stop: 10995, Start Num: 12

Candidate Starts for Hirko\_12:



(Start: 12 @10525 has 44 MA's), (27, 10627), (44, 10792), (45, 10798), (50, 10837), (58, 10894), (60, 10912),

Gene: HumptyDumpty\_15 Start: 11508, Stop: 11978, Start Num: 11

Candidate Starts for HumptyDumpty\_15:

(Start: 11 @11508 has 19 MA's), (16, 11520), (20, 11559), (21, 11562), (30, 11628), (31, 11634), (42, 11766), (48, 11799), (50, 11823), (53, 11841), (58, 11880), (65, 11925), (69, 11958), (71, 11970),

Gene: JKerns\_12 Start: 9553, Stop: 10020, Start Num: 12

Candidate Starts for JKerns\_12:

(Start: 12 @9553 has 44 MA's), (19, 9598), (20, 9601), (27, 9655), (41, 9796), (44, 9823), (45, 9829), (58, 9925),

Gene: JaNo\_15 Start: 11508, Stop: 11978, Start Num: 11

Candidate Starts for JaNo\_15:

(Start: 11 @11508 has 19 MA's), (16, 11520), (20, 11559), (21, 11562), (30, 11628), (31, 11634), (42, 11766), (48, 11799), (50, 11823), (53, 11841), (58, 11880), (65, 11925), (69, 11958), (71, 11970),

Gene: Jawnski\_11 Start: 9199, Stop: 9663, Start Num: 12

Candidate Starts for Jawnski\_11:

(Start: 12 @9199 has 44 MA's), (19, 9244), (20, 9247), (27, 9301), (30, 9316), (37, 9415), (52, 9517), (58, 9568),

Gene: JayCookie\_15 Start: 11511, Stop: 11981, Start Num: 11

Candidate Starts for JayCookie\_15:

(Start: 11 @11511 has 19 MA's), (16, 11523), (20, 11562), (21, 11565), (30, 11631), (31, 11637), (42, 11769), (48, 11802), (50, 11826), (53, 11844), (58, 11883), (65, 11928), (69, 11961), (71, 11973),

Gene: Jinkies\_13 Start: 9830, Stop: 10297, Start Num: 12

Candidate Starts for Jinkies\_13:

(Start: 12 @9830 has 44 MA's), (27, 9932), (28, 9938), (30, 9947), (39, 10061), (41, 10067), (44, 10094), (45, 10100), (50, 10139), (58, 10196), (59, 10211), (71, 10286),

Gene: Jordan\_12 Start: 9523, Stop: 9990, Start Num: 12

Candidate Starts for Jordan\_12:

(Start: 12 @9523 has 44 MA's), (19, 9568), (20, 9571), (27, 9625), (41, 9766), (44, 9793), (45, 9799), (58, 9895),

Gene: KBurrousTX\_15 Start: 11282, Stop: 11752, Start Num: 11

Candidate Starts for KBurrousTX\_15:

(Start: 11 @11282 has 19 MA's), (16, 11294), (19, 11330), (20, 11333), (34, 11468), (40, 11522), (43, 11543), (44, 11552), (48, 11573), (50, 11597), (53, 11615), (58, 11654), (60, 11672), (69, 11732), (71, 11744),

Gene: Kabocha\_43 Start: 30640, Stop: 31095, Start Num: 12

Candidate Starts for Kabocha\_43:

(8, 30577), (Start: 12 @30640 has 44 MA's), (18, 30661), (21, 30691), (27, 30742), (29, 30754), (31, 30766), (34, 30820), (38, 30865), (41, 30877), (42, 30892), (49, 30925), (68, 31063),

Gene: Kabreeze\_15 Start: 11508, Stop: 11978, Start Num: 11

Candidate Starts for Kabreeze\_15:

(Start: 11 @11508 has 19 MA's), (16, 11520), (20, 11559), (21, 11562), (30, 11628), (31, 11634), (42, 11766), (48, 11799), (50, 11823), (53, 11841), (58, 11880), (65, 11925), (69, 11958), (71, 11970),

Gene: King2\_11 Start: 9188, Stop: 9652, Start Num: 12  
Candidate Starts for King2\_11:  
(Start: 12 @9188 has 44 MA's), (19, 9233), (20, 9236), (27, 9290), (37, 9404), (52, 9506), (58, 9557),

Gene: Klevey\_11 Start: 8915, Stop: 9379, Start Num: 12  
Candidate Starts for Klevey\_11:  
(Start: 12 @8915 has 44 MA's), (44, 9182), (51, 9230), (58, 9284), (66, 9335),

Gene: LeeroyJ\_12 Start: 9513, Stop: 9980, Start Num: 12  
Candidate Starts for LeeroyJ\_12:  
(6, 9420), (7, 9429), (Start: 12 @9513 has 44 MA's), (16, 9522), (27, 9615), (44, 9783), (53, 9846), (58, 9885),

Gene: Lenoshki\_42 Start: 31528, Stop: 31962, Start Num: 18  
Candidate Starts for Lenoshki\_42:  
(8, 31444), (Start: 12 @31507 has 44 MA's), (18, 31528), (21, 31558), (27, 31609), (29, 31621), (31, 31633), (34, 31687), (38, 31732), (40, 31741), (42, 31759), (49, 31792), (68, 31930),

Gene: Lilmac1015\_11 Start: 8905, Stop: 9369, Start Num: 12  
Candidate Starts for Lilmac1015\_11:  
(Start: 12 @8905 has 44 MA's), (44, 9172), (51, 9220), (58, 9274), (66, 9325),

Gene: Linus\_15 Start: 11508, Stop: 11978, Start Num: 11  
Candidate Starts for Linus\_15:  
(Start: 11 @11508 has 19 MA's), (16, 11520), (20, 11559), (21, 11562), (30, 11628), (31, 11634), (42, 11766), (48, 11799), (50, 11823), (53, 11841), (58, 11880), (65, 11925), (69, 11958), (71, 11970),

Gene: Lukepolites\_11 Start: 9217, Stop: 9681, Start Num: 15  
Candidate Starts for Lukepolites\_11:  
(15, 9217), (40, 9448), (48, 9499), (50, 9523), (51, 9526), (55, 9562), (58, 9580), (67, 9646), (68, 9649),

Gene: Lymara\_15 Start: 11510, Stop: 11980, Start Num: 11  
Candidate Starts for Lymara\_15:  
(Start: 11 @11510 has 19 MA's), (16, 11522), (20, 11561), (21, 11564), (31, 11636), (40, 11750), (42, 11768), (48, 11801), (50, 11825), (53, 11843), (58, 11882), (65, 11927), (69, 11960), (71, 11972),

Gene: Martha\_12 Start: 9464, Stop: 9931, Start Num: 12  
Candidate Starts for Martha\_12:  
(Start: 12 @9464 has 44 MA's), (19, 9509), (20, 9512), (27, 9566), (41, 9707), (44, 9734), (45, 9740), (58, 9836),

Gene: MintFritos\_40 Start: 29828, Stop: 30283, Start Num: 12  
Candidate Starts for MintFritos\_40:  
(8, 29765), (Start: 12 @29828 has 44 MA's), (18, 29849), (21, 29879), (27, 29930), (29, 29942), (31, 29954), (34, 30008), (38, 30053), (41, 30065), (42, 30080), (49, 30113), (68, 30251),

Gene: Mordred\_15 Start: 11508, Stop: 11978, Start Num: 11  
Candidate Starts for Mordred\_15:  
(Start: 11 @11508 has 19 MA's), (16, 11520), (20, 11559), (21, 11562), (30, 11628), (31, 11634), (42, 11766), (48, 11799), (50, 11823), (53, 11841), (58, 11880), (65, 11925), (69, 11958), (71, 11970),

Gene: MoyaNatalis\_15 Start: 11523, Stop: 11981, Start Num: 16

Candidate Starts for MoyaNatalis\_15:

(Start: 11 @11511 has 19 MA's), (16, 11523), (20, 11562), (21, 11565), (30, 11631), (31, 11637), (42, 11769), (48, 11802), (50, 11826), (53, 11844), (58, 11883), (65, 11928), (69, 11961), (71, 11973),

Gene: NathanVaag\_11 Start: 9192, Stop: 9656, Start Num: 12

Candidate Starts for NathanVaag\_11:

(Start: 12 @9192 has 44 MA's), (19, 9237), (20, 9240), (27, 9294), (30, 9309), (37, 9408), (52, 9510), (58, 9561),

Gene: Nostromo\_11 Start: 9503, Stop: 9970, Start Num: 13

Candidate Starts for Nostromo\_11:

(13, 9503), (20, 9548), (26, 9593), (27, 9602), (44, 9767), (45, 9773), (58, 9869), (59, 9884), (66, 9920), (67, 9929), (70, 9950),

Gene: Oogie\_42 Start: 31554, Stop: 31988, Start Num: 18

Candidate Starts for Oogie\_42:

(8, 31470), (Start: 12 @31533 has 44 MA's), (18, 31554), (21, 31584), (27, 31635), (29, 31647), (31, 31659), (34, 31713), (38, 31758), (40, 31767), (42, 31785), (49, 31818), (68, 31956),

Gene: Pakusa\_40 Start: 29569, Stop: 30024, Start Num: 12

Candidate Starts for Pakusa\_40:

(8, 29506), (Start: 12 @29569 has 44 MA's), (18, 29590), (21, 29620), (27, 29671), (29, 29683), (31, 29695), (34, 29749), (38, 29794), (41, 29806), (42, 29821), (49, 29854), (68, 29992),

Gene: Piccoletto\_11 Start: 9193, Stop: 9657, Start Num: 12

Candidate Starts for Piccoletto\_11:

(Start: 12 @9193 has 44 MA's), (19, 9238), (20, 9241), (27, 9295), (30, 9310), (37, 9409), (52, 9511), (58, 9562),

Gene: Pippa\_12 Start: 9563, Stop: 10030, Start Num: 12

Candidate Starts for Pippa\_12:

(Start: 12 @9563 has 44 MA's), (19, 9608), (20, 9611), (27, 9665), (41, 9806), (44, 9833), (45, 9839), (58, 9935),

Gene: Prairie\_11 Start: 8912, Stop: 9376, Start Num: 12

Candidate Starts for Prairie\_11:

(Start: 12 @8912 has 44 MA's), (44, 9179), (51, 9227), (58, 9281), (66, 9332),

Gene: PrincessTrina\_15 Start: 11511, Stop: 11981, Start Num: 11

Candidate Starts for PrincessTrina\_15:

(Start: 11 @11511 has 19 MA's), (16, 11523), (20, 11562), (21, 11565), (30, 11631), (31, 11637), (42, 11769), (48, 11802), (50, 11826), (53, 11844), (58, 11883), (65, 11928), (69, 11961), (71, 11973),

Gene: RosiePosie\_15 Start: 11511, Stop: 11981, Start Num: 11

Candidate Starts for RosiePosie\_15:

(Start: 11 @11511 has 19 MA's), (16, 11523), (20, 11562), (21, 11565), (30, 11631), (31, 11637), (42, 11769), (48, 11802), (50, 11826), (53, 11844), (58, 11883), (65, 11928), (69, 11961), (71, 11973),

Gene: ScarletRaider\_41 Start: 32719, Stop: 33174, Start Num: 12

Candidate Starts for ScarletRaider\_41:

(Start: 12 @32719 has 44 MA's), (15, 32725), (18, 32740), (27, 32821), (29, 32833), (32, 32860), (34, 32899), (40, 32953), (42, 32971), (64, 33118), (68, 33142),

Gene: Scavito\_15 Start: 11508, Stop: 11978, Start Num: 11

Candidate Starts for Scavito\_15:

(Start: 11 @11508 has 19 MA's), (16, 11520), (20, 11559), (21, 11562), (30, 11628), (31, 11634), (42, 11766), (48, 11799), (50, 11823), (53, 11841), (58, 11880), (65, 11925), (69, 11958), (71, 11970),

Gene: Schomber\_41 Start: 29577, Stop: 30032, Start Num: 12

Candidate Starts for Schomber\_41:

(8, 29514), (Start: 12 @29577 has 44 MA's), (18, 29598), (21, 29628), (27, 29679), (29, 29691), (31, 29703), (34, 29757), (38, 29802), (41, 29814), (42, 29829), (49, 29862), (68, 30000),

Gene: Shade\_12 Start: 9502, Stop: 9969, Start Num: 12

Candidate Starts for Shade\_12:

(Start: 12 @9502 has 44 MA's), (19, 9547), (20, 9550), (27, 9604), (41, 9745), (44, 9772), (45, 9778), (58, 9874),

Gene: Sicarius2\_13 Start: 10002, Stop: 10475, Start Num: 12

Candidate Starts for Sicarius2\_13:

(Start: 12 @10002 has 44 MA's), (16, 10011), (26, 10095), (44, 10272), (48, 10293), (58, 10374), (66, 10425),

Gene: Sonny\_12 Start: 9523, Stop: 9990, Start Num: 12

Candidate Starts for Sonny\_12:

(Start: 12 @9523 has 44 MA's), (19, 9568), (20, 9571), (27, 9625), (41, 9766), (44, 9793), (45, 9799), (58, 9895),

Gene: StevieBAY\_12 Start: 9513, Stop: 9980, Start Num: 12

Candidate Starts for StevieBAY\_12:

(6, 9420), (7, 9429), (Start: 12 @9513 has 44 MA's), (16, 9522), (27, 9615), (44, 9783), (53, 9846), (58, 9885),

Gene: TaeYoung\_12 Start: 9527, Stop: 9994, Start Num: 12

Candidate Starts for TaeYoung\_12:

(Start: 12 @9527 has 44 MA's), (19, 9572), (20, 9575), (27, 9629), (41, 9770), (44, 9797), (45, 9803), (58, 9899),

Gene: Timinator\_12 Start: 9513, Stop: 9980, Start Num: 12

Candidate Starts for Timinator\_12:

(6, 9420), (7, 9429), (Start: 12 @9513 has 44 MA's), (16, 9522), (27, 9615), (44, 9783), (53, 9846), (58, 9885),

Gene: Toneprano\_40 Start: 29827, Stop: 30282, Start Num: 12

Candidate Starts for Toneprano\_40:

(8, 29764), (Start: 12 @29827 has 44 MA's), (18, 29848), (21, 29878), (27, 29929), (29, 29941), (31, 29953), (34, 30007), (38, 30052), (41, 30064), (42, 30079), (49, 30112), (68, 30250),

Gene: Tophat\_15 Start: 11510, Stop: 11980, Start Num: 11

Candidate Starts for Tophat\_15:

(Start: 11 @11510 has 19 MA's), (16, 11522), (20, 11561), (21, 11564), (30, 11630), (31, 11636), (42, 11768), (48, 11801), (50, 11825), (53, 11843), (58, 11882), (65, 11927), (69, 11960), (71, 11972),

Gene: Twin\_40 Start: 29827, Stop: 30282, Start Num: 12

Candidate Starts for Twin\_40:

(8, 29764), (Start: 12 @29827 has 44 MA's), (18, 29848), (21, 29878), (27, 29929), (29, 29941), (31, 29953), (34, 30007), (38, 30052), (41, 30064), (42, 30079), (49, 30112), (68, 30250),

Gene: UBSmoodge\_43 Start: 32453, Stop: 32908, Start Num: 12

Candidate Starts for UBSmoodge\_43:

(3, 32291), (Start: 12 @32453 has 44 MA's), (15, 32459), (18, 32474), (27, 32555), (29, 32567), (32, 32594), (40, 32687), (42, 32705), (64, 32852), (68, 32876),

Gene: Vibaki\_13 Start: 10981, Stop: 11451, Start Num: 12

Candidate Starts for Vibaki\_13:

(Start: 12 @10981 has 44 MA's), (27, 11083), (41, 11221), (44, 11248), (45, 11254), (50, 11293), (58, 11350), (60, 11368),

Gene: Vitus\_13 Start: 10783, Stop: 11253, Start Num: 12

Candidate Starts for Vitus\_13:

(5, 10687), (Start: 12 @10783 has 44 MA's), (15, 10789), (20, 10831), (27, 10885), (45, 11056), (50, 11095), (58, 11152),

Gene: Wyborn\_13 Start: 9863, Stop: 10336, Start Num: 12

Candidate Starts for Wyborn\_13:

(Start: 12 @9863 has 44 MA's), (16, 9872), (26, 9956), (44, 10133), (48, 10154), (58, 10235), (66, 10286),

Gene: Zartrosa\_12 Start: 9526, Stop: 9993, Start Num: 12

Candidate Starts for Zartrosa\_12:

(Start: 12 @9526 has 44 MA's), (19, 9571), (20, 9574), (27, 9628), (41, 9769), (44, 9796), (45, 9802), (58, 9898),