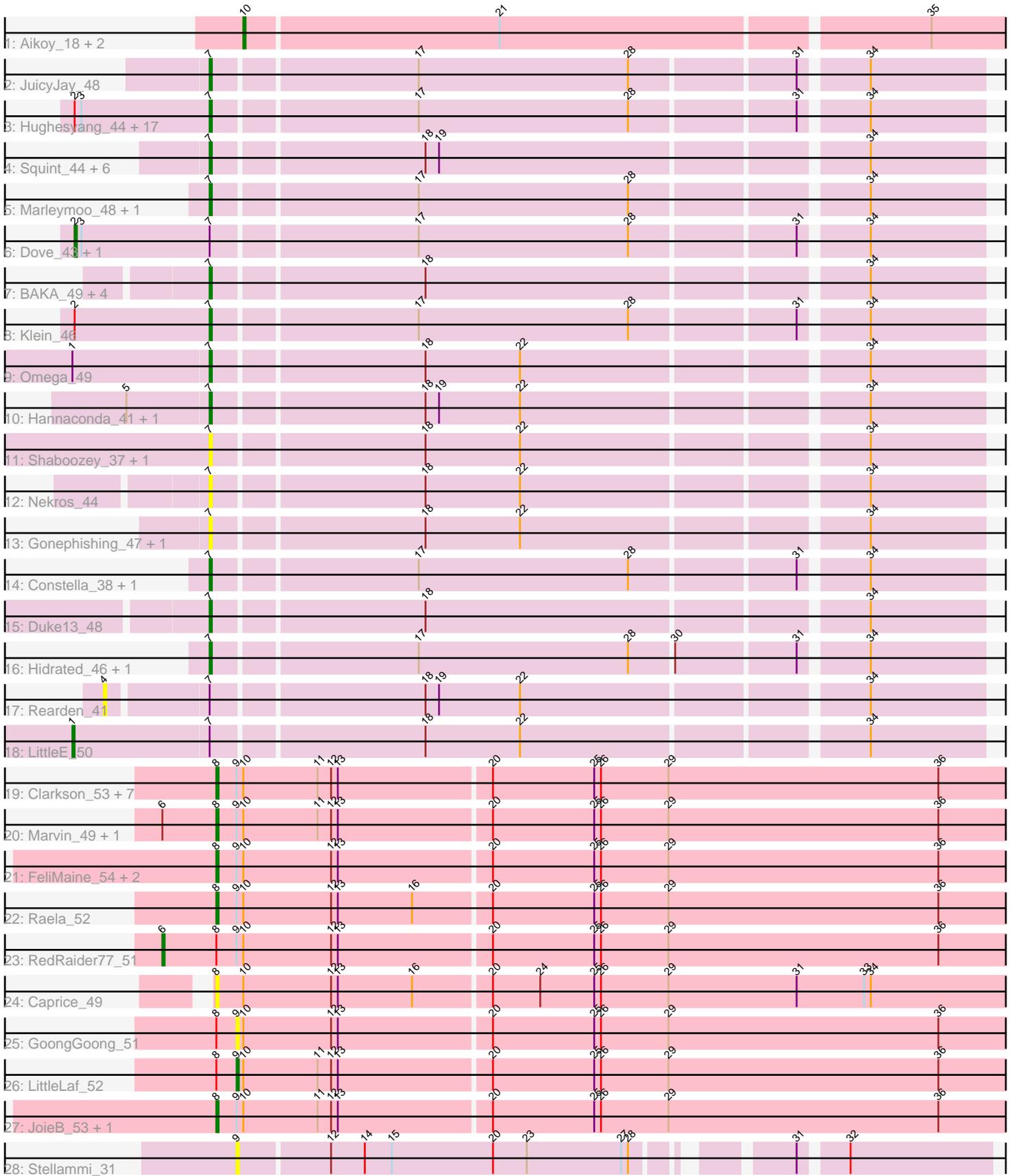


# Pham 291112



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 291112 Report

This analysis was run 03/28/26 on database version 641.

Pham number 291112 has 75 members, 14 are drafts.

Phages represented in each track:

- Track 1 : Aikoy\_18, Onyinye\_19, Leopard\_18
- Track 2 : JuicyJay\_48
- Track 3 : Hughesyang\_44, Halley\_46, Odette\_46, EricMillard\_46, Dallas\_48, HokkenD\_39, Phoebus\_45, Schatzie\_43, NihilNomen\_45, Bagrid\_45, Ejimix\_46, Pound\_47, Kalah2\_46, Bombitas\_42, ThreeRngTarjay\_44, Yeet\_44, Beem\_46, Zelink\_47
- Track 4 : Squint\_44, Lucky2013\_45, Ariel\_45, Courthouse\_45, Superphikiman\_45, Porcelain\_44, MiaZeal\_45
- Track 5 : Marleymoo\_48, Thibault\_40
- Track 6 : Dove\_43, Redno2\_44
- Track 7 : BAKA\_49, Wanda\_51, DmpstrDiver\_46, Minerva\_51, Optimus\_50
- Track 8 : Klein\_46
- Track 9 : Omega\_49
- Track 10 : Hannaconda\_41, KashFlow\_38
- Track 11 : Shaboozey\_37, BronnyJames\_37
- Track 12 : Nekros\_44
- Track 13 : Gonephishing\_47, Nibley\_40
- Track 14 : Constella\_38, Xiaokay\_41
- Track 15 : Duke13\_48
- Track 16 : Hidrated\_46, Bobby\_45
- Track 17 : Rearden\_41
- Track 18 : LittleE\_50
- Track 19 : Clarkson\_53, Lilbit\_51, Beelzebub\_56, Poise\_52, Pringar\_52, Blackbeetle\_52, Huphlepuuff\_54, VasuNzinga\_52
- Track 20 : Marvin\_49, Tesla\_50
- Track 21 : FeliMaine\_54, MosMoris\_50, Gattaca\_51
- Track 22 : Raela\_52
- Track 23 : RedRaider77\_51
- Track 24 : Caprice\_49
- Track 25 : GoongGoong\_51
- Track 26 : LittleLaf\_52
- Track 27 : JoieB\_53, Corazon\_50
- Track 28 : Stellammi\_31

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

The start number called the most often in the published annotations is 7, it was called in 37 of the 61 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Ariel\_45, BAKA\_49, Bagrid\_45, Beem\_46, Bobby\_45, Bombitas\_42, BronnyJames\_37, Constella\_38, Courthouse\_45, Dallas\_48, DmpstrDiver\_46, Duke13\_48, Ejimix\_46, EricMillard\_46, Gonephishing\_47, Halley\_46, Hannaconda\_41, Hidrated\_46, HokkenD\_39, Hughesyang\_44, JuicyJay\_48, Kalah2\_46, KashFlow\_38, Klein\_46, Lucky2013\_45, Marleymoo\_48, MiaZeal\_45, Minerva\_51, Nekros\_44, Nibley\_40, NihilNomen\_45, Odette\_46, Omega\_49, Optimus\_50, Phoebus\_45, Porcelain\_44, Pound\_47, Schatzie\_43, Shaboozey\_37, Squint\_44, Superphikiman\_45, Thibault\_40, ThreeRngTarjay\_44, Wanda\_51, Xiaokay\_41, Yeet\_44, Zelink\_47,

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

- Dove\_43, LittleE\_50, Rearden\_41, Redno2\_44,

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

- Aikoy\_18, Beelzebub\_56, Blackbeetle\_52, Caprice\_49, Clarkson\_53, Corazon\_50, FeliMaine\_54, Gattaca\_51, GoongGoong\_51, Huphlepuuff\_54, JoieB\_53, Leopard\_18, Lilbit\_51, LittleLaf\_52, Marvin\_49, MosMoris\_50, Onyinye\_19, Poise\_52, Pringar\_52, Raela\_52, RedRaider77\_51, Stellammi\_31, Tesla\_50, VasuNzinga\_52,

### Summary by start number:

Start 1:

- Found in 2 of 75 ( 2.7% ) of genes in pham
- Manual Annotations of this start: 1 of 61
- Called 50.0% of time when present
- Phage (with cluster) where this start called: LittleE\_50 (J),

Start 2:

- Found in 21 of 75 ( 28.0% ) of genes in pham
- Manual Annotations of this start: 2 of 61
- Called 9.5% of time when present
- Phage (with cluster) where this start called: Dove\_43 (J), Redno2\_44 (J),

Start 4:

- Found in 1 of 75 ( 1.3% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rearden\_41 (J),

Start 6:

- Found in 3 of 75 ( 4.0% ) of genes in pham
- Manual Annotations of this start: 1 of 61
- Called 33.3% of time when present
- Phage (with cluster) where this start called: RedRaider77\_51 (S),

Start 7:

- Found in 51 of 75 ( 68.0% ) of genes in pham
- Manual Annotations of this start: 37 of 61

- Called 92.2% of time when present
- Phage (with cluster) where this start called: Ariel\_45 (J), BAKA\_49 (J), Bagrid\_45 (J), Beem\_46 (J), Bobby\_45 (J), Bombitas\_42 (J), BronnyJames\_37 (J), Constella\_38 (J), Courthouse\_45 (J), Dallas\_48 (J), DmpstrDiver\_46 (J), Duke13\_48 (J), Ejimix\_46 (J), EricMillard\_46 (J), Gonephishing\_47 (J), Halley\_46 (J), Hannaconda\_41 (J), Hidrated\_46 (J), HokkenD\_39 (J), Hughesyang\_44 (J), JuicyJay\_48 (J), Kalah2\_46 (J), KashFlow\_38 (J), Klein\_46 (J), Lucky2013\_45 (J), Marleymoo\_48 (J), MiaZeal\_45 (J), Minerva\_51 (J), Nekros\_44 (J), Nibley\_40 (J), NihilNomen\_45 (J), Odette\_46 (J), Omega\_49 (J), Optimus\_50 (J), Phoebus\_45 (J), Porcelain\_44 (J), Pound\_47 (J), Schatzie\_43 (J), Shaboozey\_37 (J), Squint\_44 (J), Superphikiman\_45 (J), Thibault\_40 (J), ThreeRngTarjay\_44 (J), Wanda\_51 (J), Xiaokay\_41 (J), Yeet\_44 (J), Zelink\_47 (J),

#### Start 8:

- Found in 20 of 75 ( 26.7% ) of genes in pham
- Manual Annotations of this start: 16 of 61
- Called 85.0% of time when present
- Phage (with cluster) where this start called: Beelzebub\_56 (S), Blackbeetle\_52 (S), Caprice\_49 (S), Clarkson\_53 (S), Corazon\_50 (S), FeliMaine\_54 (S), Gattaca\_51 (S), Huphlepuuff\_54 (S), JoieB\_53 (S), Lilbit\_51 (S), Marvin\_49 (S), MosMoris\_50 (S), Poise\_52 (S), Pringar\_52 (S), Raela\_52 (S), Tesla\_50 (S), VasuNzinga\_52 (S),

#### Start 9:

- Found in 20 of 75 ( 26.7% ) of genes in pham
- Manual Annotations of this start: 1 of 61
- Called 15.0% of time when present
- Phage (with cluster) where this start called: GoongGoong\_51 (S), LittleLaf\_52 (S), Stellammi\_31 (UNK),

#### Start 10:

- Found in 23 of 75 ( 30.7% ) of genes in pham
- Manual Annotations of this start: 3 of 61
- Called 13.0% of time when present
- Phage (with cluster) where this start called: Aikoy\_18 (AE), Leopard\_18 (AE), Onyinye\_19 (AE),

### Summary by clusters:

There are 4 clusters represented in this pham: UNK, S, J, AE,

Info for manual annotations of cluster AE:

- Start number 10 was manually annotated 3 times for cluster AE.

Info for manual annotations of cluster J:

- Start number 1 was manually annotated 1 time for cluster J.
- Start number 2 was manually annotated 2 times for cluster J.
- Start number 7 was manually annotated 37 times for cluster J.

Info for manual annotations of cluster S:

- Start number 6 was manually annotated 1 time for cluster S.
- Start number 8 was manually annotated 16 times for cluster S.
- Start number 9 was manually annotated 1 time for cluster S.

**Gene Information:**

Gene: Aikoy\_18 Start: 11557, Stop: 11889, Start Num: 10

Candidate Starts for Aikoy\_18:

(Start: 10 @11557 has 3 MA's), (21, 11668), (35, 11851),

Gene: Ariel\_45 Start: 36301, Stop: 36627, Start Num: 7

Candidate Starts for Ariel\_45:

(Start: 7 @36301 has 37 MA's), (18, 36391), (19, 36397), (34, 36577),

Gene: BAKA\_49 Start: 39959, Stop: 40285, Start Num: 7

Candidate Starts for BAKA\_49:

(Start: 7 @39959 has 37 MA's), (18, 40049), (34, 40235),

Gene: Bagrid\_45 Start: 39888, Stop: 40214, Start Num: 7

Candidate Starts for Bagrid\_45:

(Start: 2 @39828 has 2 MA's), (3, 39831), (Start: 7 @39888 has 37 MA's), (17, 39975), (28, 40068), (31, 40137), (34, 40164),

Gene: Beelzebub\_56 Start: 29928, Stop: 30275, Start Num: 8

Candidate Starts for Beelzebub\_56:

(Start: 8 @29928 has 16 MA's), (Start: 9 @29937 has 1 MA's), (Start: 10 @29940 has 3 MA's), (11, 29973), (12, 29979), (13, 29982), (20, 30048), (25, 30093), (26, 30096), (29, 30126), (36, 30246),

Gene: Beem\_46 Start: 40454, Stop: 40780, Start Num: 7

Candidate Starts for Beem\_46:

(Start: 2 @40394 has 2 MA's), (3, 40397), (Start: 7 @40454 has 37 MA's), (17, 40541), (28, 40634), (31, 40703), (34, 40730),

Gene: Blackbeetle\_52 Start: 28974, Stop: 29321, Start Num: 8

Candidate Starts for Blackbeetle\_52:

(Start: 8 @28974 has 16 MA's), (Start: 9 @28983 has 1 MA's), (Start: 10 @28986 has 3 MA's), (11, 29019), (12, 29025), (13, 29028), (20, 29094), (25, 29139), (26, 29142), (29, 29172), (36, 29292),

Gene: Bobby\_45 Start: 38639, Stop: 38965, Start Num: 7

Candidate Starts for Bobby\_45:

(Start: 7 @38639 has 37 MA's), (17, 38726), (28, 38819), (30, 38837), (31, 38888), (34, 38915),

Gene: Bombitas\_42 Start: 39510, Stop: 39836, Start Num: 7

Candidate Starts for Bombitas\_42:

(Start: 2 @39450 has 2 MA's), (3, 39453), (Start: 7 @39510 has 37 MA's), (17, 39597), (28, 39690), (31, 39759), (34, 39786),

Gene: BronnyJames\_37 Start: 33633, Stop: 33959, Start Num: 7

Candidate Starts for BronnyJames\_37:

(Start: 7 @33633 has 37 MA's), (18, 33723), (22, 33765), (34, 33909),

Gene: Caprice\_49 Start: 29287, Stop: 29634, Start Num: 8

Candidate Starts for Caprice\_49:

(Start: 8 @29287 has 16 MA's), (Start: 10 @29299 has 3 MA's), (12, 29338), (13, 29341), (16, 29374), (20, 29407), (24, 29428), (25, 29452), (26, 29455), (29, 29485), (31, 29542), (33, 29572), (34, 29575),

Gene: Clarkson\_53 Start: 29656, Stop: 30003, Start Num: 8

Candidate Starts for Clarkson\_53:

(Start: 8 @29656 has 16 MA's), (Start: 9 @29665 has 1 MA's), (Start: 10 @29668 has 3 MA's), (11, 29701), (12, 29707), (13, 29710), (20, 29776), (25, 29821), (26, 29824), (29, 29854), (36, 29974),

Gene: Constella\_38 Start: 36585, Stop: 36911, Start Num: 7

Candidate Starts for Constella\_38:

(Start: 7 @36585 has 37 MA's), (17, 36672), (28, 36765), (31, 36834), (34, 36861),

Gene: Corazon\_50 Start: 29850, Stop: 30197, Start Num: 8

Candidate Starts for Corazon\_50:

(Start: 8 @29850 has 16 MA's), (Start: 9 @29859 has 1 MA's), (Start: 10 @29862 has 3 MA's), (11, 29895), (12, 29901), (13, 29904), (20, 29970), (25, 30015), (26, 30018), (29, 30048), (36, 30168),

Gene: Courthouse\_45 Start: 36705, Stop: 37031, Start Num: 7

Candidate Starts for Courthouse\_45:

(Start: 7 @36705 has 37 MA's), (18, 36795), (19, 36801), (34, 36981),

Gene: Dallas\_48 Start: 39979, Stop: 40305, Start Num: 7

Candidate Starts for Dallas\_48:

(Start: 2 @39919 has 2 MA's), (3, 39922), (Start: 7 @39979 has 37 MA's), (17, 40066), (28, 40159), (31, 40228), (34, 40255),

Gene: DmpstrDiver\_46 Start: 39388, Stop: 39714, Start Num: 7

Candidate Starts for DmpstrDiver\_46:

(Start: 7 @39388 has 37 MA's), (18, 39478), (34, 39664),

Gene: Dove\_43 Start: 39449, Stop: 39835, Start Num: 2

Candidate Starts for Dove\_43:

(Start: 2 @39449 has 2 MA's), (3, 39452), (Start: 7 @39509 has 37 MA's), (17, 39596), (28, 39689), (31, 39758), (34, 39785),

Gene: Duke13\_48 Start: 39706, Stop: 40032, Start Num: 7

Candidate Starts for Duke13\_48:

(Start: 7 @39706 has 37 MA's), (18, 39796), (34, 39982),

Gene: Ejimix\_46 Start: 41239, Stop: 41565, Start Num: 7

Candidate Starts for Ejimix\_46:

(Start: 2 @41179 has 2 MA's), (3, 41182), (Start: 7 @41239 has 37 MA's), (17, 41326), (28, 41419), (31, 41488), (34, 41515),

Gene: EricMillard\_46 Start: 40740, Stop: 41066, Start Num: 7

Candidate Starts for EricMillard\_46:

(Start: 2 @40680 has 2 MA's), (3, 40683), (Start: 7 @40740 has 37 MA's), (17, 40827), (28, 40920), (31, 40989), (34, 41016),

Gene: FeliMaine\_54 Start: 29898, Stop: 30245, Start Num: 8

Candidate Starts for FeliMaine\_54:

(Start: 8 @29898 has 16 MA's), (Start: 9 @29907 has 1 MA's), (Start: 10 @29910 has 3 MA's), (12, 29949), (13, 29952), (20, 30018), (25, 30063), (26, 30066), (29, 30096), (36, 30216),

Gene: Gattaca\_51 Start: 29077, Stop: 29424, Start Num: 8

Candidate Starts for Gattaca\_51:

(Start: 8 @29077 has 16 MA's), (Start: 9 @29086 has 1 MA's), (Start: 10 @29089 has 3 MA's), (12, 29128), (13, 29131), (20, 29197), (25, 29242), (26, 29245), (29, 29275), (36, 29395),

Gene: Gonephishing\_47 Start: 38100, Stop: 38426, Start Num: 7

Candidate Starts for Gonephishing\_47:

(Start: 7 @38100 has 37 MA's), (18, 38190), (22, 38232), (34, 38376),

Gene: GoongGoong\_51 Start: 28885, Stop: 29223, Start Num: 9

Candidate Starts for GoongGoong\_51:

(Start: 8 @28876 has 16 MA's), (Start: 9 @28885 has 1 MA's), (Start: 10 @28888 has 3 MA's), (12, 28927), (13, 28930), (20, 28996), (25, 29041), (26, 29044), (29, 29074), (36, 29194),

Gene: Halley\_46 Start: 40453, Stop: 40779, Start Num: 7

Candidate Starts for Halley\_46:

(Start: 2 @40393 has 2 MA's), (3, 40396), (Start: 7 @40453 has 37 MA's), (17, 40540), (28, 40633), (31, 40702), (34, 40729),

Gene: Hannaconda\_41 Start: 34272, Stop: 34598, Start Num: 7

Candidate Starts for Hannaconda\_41:

(5, 34236), (Start: 7 @34272 has 37 MA's), (18, 34362), (19, 34368), (22, 34404), (34, 34548),

Gene: Hidrated\_46 Start: 39831, Stop: 40157, Start Num: 7

Candidate Starts for Hidrated\_46:

(Start: 7 @39831 has 37 MA's), (17, 39918), (28, 40011), (30, 40029), (31, 40080), (34, 40107),

Gene: HokkenD\_39 Start: 38722, Stop: 39048, Start Num: 7

Candidate Starts for HokkenD\_39:

(Start: 2 @38662 has 2 MA's), (3, 38665), (Start: 7 @38722 has 37 MA's), (17, 38809), (28, 38902), (31, 38971), (34, 38998),

Gene: Hughesyang\_44 Start: 40382, Stop: 40708, Start Num: 7

Candidate Starts for Hughesyang\_44:

(Start: 2 @40322 has 2 MA's), (3, 40325), (Start: 7 @40382 has 37 MA's), (17, 40469), (28, 40562), (31, 40631), (34, 40658),

Gene: Huphlebuff\_54 Start: 29461, Stop: 29808, Start Num: 8

Candidate Starts for Huphlebuff\_54:

(Start: 8 @29461 has 16 MA's), (Start: 9 @29470 has 1 MA's), (Start: 10 @29473 has 3 MA's), (11, 29506), (12, 29512), (13, 29515), (20, 29581), (25, 29626), (26, 29629), (29, 29659), (36, 29779),

Gene: JoieB\_53 Start: 29894, Stop: 30241, Start Num: 8

Candidate Starts for JoieB\_53:

(Start: 8 @29894 has 16 MA's), (Start: 9 @29903 has 1 MA's), (Start: 10 @29906 has 3 MA's), (11, 29939), (12, 29945), (13, 29948), (20, 30014), (25, 30059), (26, 30062), (29, 30092), (36, 30212),

Gene: JuicyJay\_48 Start: 42202, Stop: 42528, Start Num: 7

Candidate Starts for JuicyJay\_48:

(Start: 7 @42202 has 37 MA's), (17, 42289), (28, 42382), (31, 42451), (34, 42478),

Gene: Kalah2\_46 Start: 40790, Stop: 41116, Start Num: 7

Candidate Starts for Kalah2\_46:

(Start: 2 @40730 has 2 MA's), (3, 40733), (Start: 7 @40790 has 37 MA's), (17, 40877), (28, 40970), (31, 41039), (34, 41066),

Gene: KashFlow\_38 Start: 33893, Stop: 34219, Start Num: 7

Candidate Starts for KashFlow\_38:

(5, 33857), (Start: 7 @33893 has 37 MA's), (18, 33983), (19, 33989), (22, 34025), (34, 34169),

Gene: Klein\_46 Start: 40014, Stop: 40340, Start Num: 7

Candidate Starts for Klein\_46:

(Start: 2 @39954 has 2 MA's), (Start: 7 @40014 has 37 MA's), (17, 40101), (28, 40194), (31, 40263), (34, 40290),

Gene: Leopard\_18 Start: 11842, Stop: 12174, Start Num: 10

Candidate Starts for Leopard\_18:

(Start: 10 @11842 has 3 MA's), (21, 11953), (35, 12136),

Gene: Lilbit\_51 Start: 29657, Stop: 30004, Start Num: 8

Candidate Starts for Lilbit\_51:

(Start: 8 @29657 has 16 MA's), (Start: 9 @29666 has 1 MA's), (Start: 10 @29669 has 3 MA's), (11, 29702), (12, 29708), (13, 29711), (20, 29777), (25, 29822), (26, 29825), (29, 29855), (36, 29975),

Gene: LittleE\_50 Start: 40192, Stop: 40578, Start Num: 1

Candidate Starts for LittleE\_50:

(Start: 1 @40192 has 1 MA's), (Start: 7 @40252 has 37 MA's), (18, 40342), (22, 40384), (34, 40528),

Gene: LittleLaf\_52 Start: 29395, Stop: 29733, Start Num: 9

Candidate Starts for LittleLaf\_52:

(Start: 8 @29386 has 16 MA's), (Start: 9 @29395 has 1 MA's), (Start: 10 @29398 has 3 MA's), (11, 29431), (12, 29437), (13, 29440), (20, 29506), (25, 29551), (26, 29554), (29, 29584), (36, 29704),

Gene: Lucky2013\_45 Start: 36841, Stop: 37167, Start Num: 7

Candidate Starts for Lucky2013\_45:

(Start: 7 @36841 has 37 MA's), (18, 36931), (19, 36937), (34, 37117),

Gene: Marleymoo\_48 Start: 40383, Stop: 40709, Start Num: 7

Candidate Starts for Marleymoo\_48:

(Start: 7 @40383 has 37 MA's), (17, 40470), (28, 40563), (34, 40659),

Gene: Marvin\_49 Start: 29144, Stop: 29491, Start Num: 8

Candidate Starts for Marvin\_49:

(Start: 6 @29120 has 1 MA's), (Start: 8 @29144 has 16 MA's), (Start: 9 @29153 has 1 MA's), (Start: 10 @29156 has 3 MA's), (11, 29189), (12, 29195), (13, 29198), (20, 29264), (25, 29309), (26, 29312), (29, 29342), (36, 29462),

Gene: MiaZeal\_45 Start: 36516, Stop: 36842, Start Num: 7

Candidate Starts for MiaZeal\_45:

(Start: 7 @36516 has 37 MA's), (18, 36606), (19, 36612), (34, 36792),

Gene: Minerva\_51 Start: 41255, Stop: 41581, Start Num: 7

Candidate Starts for Minerva\_51:

(Start: 7 @41255 has 37 MA's), (18, 41345), (34, 41531),

Gene: MosMoris\_50 Start: 29077, Stop: 29424, Start Num: 8

Candidate Starts for MosMoris\_50:

(Start: 8 @29077 has 16 MA's), (Start: 9 @29086 has 1 MA's), (Start: 10 @29089 has 3 MA's), (12, 29128), (13, 29131), (20, 29197), (25, 29242), (26, 29245), (29, 29275), (36, 29395),

Gene: Nekros\_44 Start: 39325, Stop: 39651, Start Num: 7

Candidate Starts for Nekros\_44:

(Start: 7 @39325 has 37 MA's), (18, 39415), (22, 39457), (34, 39601),

Gene: Nibley\_40 Start: 35347, Stop: 35673, Start Num: 7

Candidate Starts for Nibley\_40:

(Start: 7 @35347 has 37 MA's), (18, 35437), (22, 35479), (34, 35623),

Gene: NihilNomen\_45 Start: 40530, Stop: 40856, Start Num: 7

Candidate Starts for NihilNomen\_45:

(Start: 2 @40470 has 2 MA's), (3, 40473), (Start: 7 @40530 has 37 MA's), (17, 40617), (28, 40710), (31, 40779), (34, 40806),

Gene: Odette\_46 Start: 39763, Stop: 40089, Start Num: 7

Candidate Starts for Odette\_46:

(Start: 2 @39703 has 2 MA's), (3, 39706), (Start: 7 @39763 has 37 MA's), (17, 39850), (28, 39943), (31, 40012), (34, 40039),

Gene: Omega\_49 Start: 40896, Stop: 41222, Start Num: 7

Candidate Starts for Omega\_49:

(Start: 1 @40836 has 1 MA's), (Start: 7 @40896 has 37 MA's), (18, 40986), (22, 41028), (34, 41172),

Gene: Onyinye\_19 Start: 11723, Stop: 12055, Start Num: 10

Candidate Starts for Onyinye\_19:

(Start: 10 @11723 has 3 MA's), (21, 11834), (35, 12017),

Gene: Optimus\_50 Start: 40840, Stop: 41166, Start Num: 7

Candidate Starts for Optimus\_50:

(Start: 7 @40840 has 37 MA's), (18, 40930), (34, 41116),

Gene: Phoebus\_45 Start: 40740, Stop: 41066, Start Num: 7

Candidate Starts for Phoebus\_45:

(Start: 2 @40680 has 2 MA's), (3, 40683), (Start: 7 @40740 has 37 MA's), (17, 40827), (28, 40920), (31, 40989), (34, 41016),

Gene: Poise\_52 Start: 28974, Stop: 29321, Start Num: 8

Candidate Starts for Poise\_52:

(Start: 8 @28974 has 16 MA's), (Start: 9 @28983 has 1 MA's), (Start: 10 @28986 has 3 MA's), (11, 29019), (12, 29025), (13, 29028), (20, 29094), (25, 29139), (26, 29142), (29, 29172), (36, 29292),

Gene: Porcelain\_44 Start: 36516, Stop: 36842, Start Num: 7

Candidate Starts for Porcelain\_44:

(Start: 7 @36516 has 37 MA's), (18, 36606), (19, 36612), (34, 36792),

Gene: Pound\_47 Start: 41761, Stop: 42087, Start Num: 7

Candidate Starts for Pound\_47:

(Start: 2 @41701 has 2 MA's), (3, 41704), (Start: 7 @41761 has 37 MA's), (17, 41848), (28, 41941), (31, 42010), (34, 42037),

Gene: Pringar\_52 Start: 29262, Stop: 29609, Start Num: 8

Candidate Starts for Pringar\_52:

(Start: 8 @29262 has 16 MA's), (Start: 9 @29271 has 1 MA's), (Start: 10 @29274 has 3 MA's), (11, 29307), (12, 29313), (13, 29316), (20, 29382), (25, 29427), (26, 29430), (29, 29460), (36, 29580),

Gene: Raela\_52 Start: 29529, Stop: 29876, Start Num: 8

Candidate Starts for Raela\_52:

(Start: 8 @29529 has 16 MA's), (Start: 9 @29538 has 1 MA's), (Start: 10 @29541 has 3 MA's), (12, 29580), (13, 29583), (16, 29616), (20, 29649), (25, 29694), (26, 29697), (29, 29727), (36, 29847),

Gene: Rearden\_41 Start: 36738, Stop: 37106, Start Num: 4

Candidate Starts for Rearden\_41:

(4, 36738), (Start: 7 @36780 has 37 MA's), (18, 36870), (19, 36876), (22, 36912), (34, 37056),

Gene: RedRaider77\_51 Start: 28894, Stop: 29265, Start Num: 6

Candidate Starts for RedRaider77\_51:

(Start: 6 @28894 has 1 MA's), (Start: 8 @28918 has 16 MA's), (Start: 9 @28927 has 1 MA's), (Start: 10 @28930 has 3 MA's), (12, 28969), (13, 28972), (20, 29038), (25, 29083), (26, 29086), (29, 29116), (36, 29236),

Gene: Redno2\_44 Start: 37435, Stop: 37821, Start Num: 2

Candidate Starts for Redno2\_44:

(Start: 2 @37435 has 2 MA's), (3, 37438), (Start: 7 @37495 has 37 MA's), (17, 37582), (28, 37675), (31, 37744), (34, 37771),

Gene: Schatzie\_43 Start: 39511, Stop: 39837, Start Num: 7

Candidate Starts for Schatzie\_43:

(Start: 2 @39451 has 2 MA's), (3, 39454), (Start: 7 @39511 has 37 MA's), (17, 39598), (28, 39691), (31, 39760), (34, 39787),

Gene: Shaboozey\_37 Start: 33633, Stop: 33959, Start Num: 7

Candidate Starts for Shaboozey\_37:

(Start: 7 @33633 has 37 MA's), (18, 33723), (22, 33765), (34, 33909),

Gene: Squint\_44 Start: 36635, Stop: 36961, Start Num: 7

Candidate Starts for Squint\_44:

(Start: 7 @36635 has 37 MA's), (18, 36725), (19, 36731), (34, 36911),

Gene: Stellammi\_31 Start: 25052, Stop: 25357, Start Num: 9

Candidate Starts for Stellammi\_31:

(Start: 9 @25052 has 1 MA's), (12, 25091), (14, 25106), (15, 25118), (20, 25163), (23, 25178), (27, 25220), (28, 25223), (31, 25277), (32, 25295),

Gene: Superphikiman\_45 Start: 36707, Stop: 37033, Start Num: 7

Candidate Starts for Superphikiman\_45:

(Start: 7 @36707 has 37 MA's), (18, 36797), (19, 36803), (34, 36983),

Gene: Tesla\_50 Start: 28767, Stop: 29114, Start Num: 8

Candidate Starts for Tesla\_50:

(Start: 6 @28743 has 1 MA's), (Start: 8 @28767 has 16 MA's), (Start: 9 @28776 has 1 MA's), (Start: 10 @28779 has 3 MA's), (11, 28812), (12, 28818), (13, 28821), (20, 28887), (25, 28932), (26, 28935), (29, 28965), (36, 29085),

Gene: Thibault\_40 Start: 37945, Stop: 38271, Start Num: 7  
Candidate Starts for Thibault\_40:  
(Start: 7 @37945 has 37 MA's), (17, 38032), (28, 38125), (34, 38221),

Gene: ThreeRngTarjay\_44 Start: 40590, Stop: 40916, Start Num: 7  
Candidate Starts for ThreeRngTarjay\_44:  
(Start: 2 @40530 has 2 MA's), (3, 40533), (Start: 7 @40590 has 37 MA's), (17, 40677), (28, 40770),  
(31, 40839), (34, 40866),

Gene: VasuNzinga\_52 Start: 28836, Stop: 29183, Start Num: 8  
Candidate Starts for VasuNzinga\_52:  
(Start: 8 @28836 has 16 MA's), (Start: 9 @28845 has 1 MA's), (Start: 10 @28848 has 3 MA's), (11,  
28881), (12, 28887), (13, 28890), (20, 28956), (25, 29001), (26, 29004), (29, 29034), (36, 29154),

Gene: Wanda\_51 Start: 39732, Stop: 40058, Start Num: 7  
Candidate Starts for Wanda\_51:  
(Start: 7 @39732 has 37 MA's), (18, 39822), (34, 40008),

Gene: Xiaokay\_41 Start: 37348, Stop: 37674, Start Num: 7  
Candidate Starts for Xiaokay\_41:  
(Start: 7 @37348 has 37 MA's), (17, 37435), (28, 37528), (31, 37597), (34, 37624),

Gene: Yeet\_44 Start: 39749, Stop: 40075, Start Num: 7  
Candidate Starts for Yeet\_44:  
(Start: 2 @39689 has 2 MA's), (3, 39692), (Start: 7 @39749 has 37 MA's), (17, 39836), (28, 39929),  
(31, 39998), (34, 40025),

Gene: Zelink\_47 Start: 41534, Stop: 41860, Start Num: 7  
Candidate Starts for Zelink\_47:  
(Start: 2 @41474 has 2 MA's), (3, 41477), (Start: 7 @41534 has 37 MA's), (17, 41621), (28, 41714),  
(31, 41783), (34, 41810),