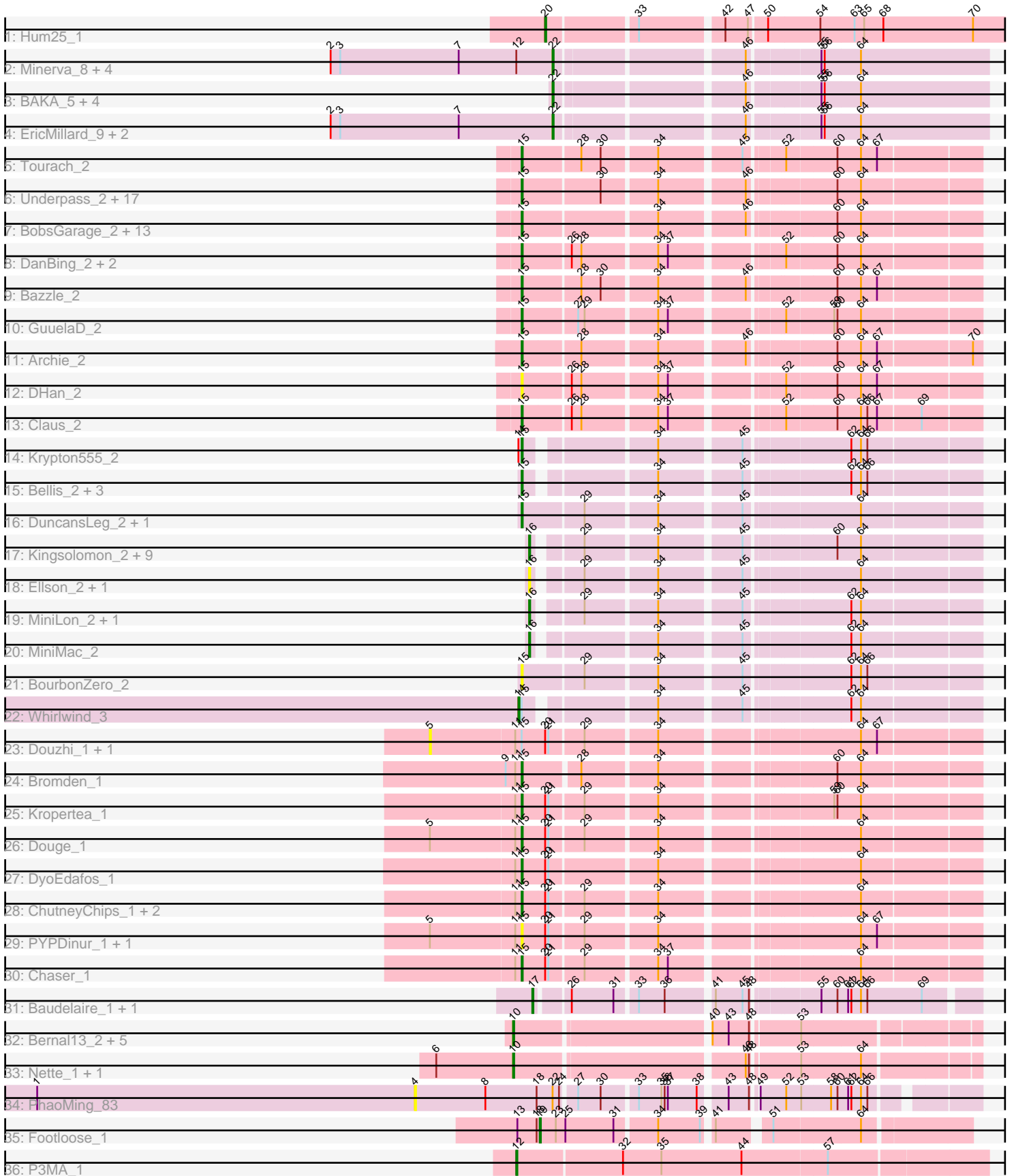


Pham 304879



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 304879 Report

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

Pham number 304879 has 104 members, 24 are drafts.

Phages represented in each track:

- Track 1 : Hum25\_1
- Track 2 : Minerva\_8, DmpstrDiver\_8, ThreeRngTarjay\_8, Hughesyang\_8, Kalah2\_9
- Track 3 : BAKA\_5, Duke13\_5, Optimus\_6, Thibault\_5, Constella\_4
- Track 4 : EricMillard\_9, Odette\_8, Phoebus\_9
- Track 5 : Tourach\_2
- Track 6 : Underpass\_2, Vetrix\_2, Soap141\_2, Lynnae\_2, Kahlid\_2, OverPar\_2, LilDestine\_2, Sarshaun\_2, Finemlucis\_2, Nicholasp3\_2, Loadrie\_2, Gardann\_2, Wilder\_2, MkaliMitinis3\_2, Hafay\_2, Crossroads\_2, Wigglewiggles\_2, Rumpelstiltskin\_2
- Track 7 : BobsGarage\_2, Netyap\_2, Miley16\_2, Gabriela\_2, Winky\_2, Zakai\_2, Lewan\_2, Rossetti\_2, DrSeegs\_2, Breezona\_2, SoJulia\_2, Itos\_2, BigCheese\_2, Faith1\_2
- Track 8 : DanBing\_2, ZhongYanYuan\_2, Baoshan\_2
- Track 9 : Bazzle\_2
- Track 10 : GuuelaD\_2
- Track 11 : Archie\_2
- Track 12 : DHan\_2
- Track 13 : Claus\_2
- Track 14 : Krypton555\_2
- Track 15 : Bellis\_2, Moostard\_2, Samty\_2, Finnry\_2
- Track 16 : DuncansLeg\_2, LiyuLake\_2
- Track 17 : Kingsolomon\_2, Nicholas\_2, Lumos\_2, Red305\_2, TriFive\_2, Snenia\_2, MsGreen\_2, Jubie\_2, Clautastrophe\_2, Jobypre\_2
- Track 18 : Ellson\_2, KirDoubleO7\_2
- Track 19 : MiniLon\_2, Lolly9\_2
- Track 20 : MiniMac\_2
- Track 21 : BourbonZero\_2
- Track 22 : Whirlwind\_3
- Track 23 : Douzhi\_1, BrainDrainer\_1
- Track 24 : Bromden\_1
- Track 25 : Kropertea\_1
- Track 26 : Douge\_1
- Track 27 : DyoEdafos\_1
- Track 28 : ChutneyChips\_1, Quby\_1, FarmResident\_1
- Track 29 : PYPDinur\_1, Sheng711\_1
- Track 30 : Chaser\_1
- Track 31 : Baudelaire\_1, Aegeus\_1

- Track 32 : Bernal13\_2, Nairb\_2, ZenTime222\_2, Ibrahim\_2, RonRayGun\_2, Whitty\_2
- Track 33 : Nette\_1, Mendokysei\_1
- Track 34 : PhaoMing\_83
- Track 35 : Footloose\_1
- Track 36 : P3MA\_1

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

The start number called the most often in the published annotations is 15, it was called in 43 of the 80 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Archie\_2, Baoshan\_2, Bazzle\_2, Bellis\_2, BigCheese\_2, BobsGarage\_2, BourbonZero\_2, Breezona\_2, Bromden\_1, Chaser\_1, ChutneyChips\_1, Claus\_2, Crossroads\_2, DHan\_2, DanBing\_2, Douge\_1, DrSeegs\_2, DuncansLeg\_2, DyoEdafos\_1, Faith1\_2, FarmResident\_1, Finemlucis\_2, Finnry\_2, Gabriela\_2, Gardann\_2, GuuelaD\_2, Hafay\_2, Itos\_2, Kahlid\_2, Kropertea\_1, Krypton555\_2, Lewan\_2, LilDestine\_2, LiyuLake\_2, Loadrie\_2, Lynnae\_2, Miley16\_2, MkaliMitinis3\_2, Moostard\_2, Netyap\_2, Nicholasp3\_2, OverPar\_2, PYPDinur\_1, Quby\_1, Rossetti\_2, Rumpelstiltskin\_2, Samty\_2, Sarshaun\_2, Sheng711\_1, SoJulia\_2, Soap141\_2, Tourach\_2, Underpass\_2, Vetrix\_2, Wigglewiggle\_2, Wilder\_2, Winky\_2, Zakai\_2, ZhongYanYuan\_2,

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

- BrainDrainer\_1, Douzhi\_1, Whirlwind\_3,

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

- Aegeus\_1, BAKA\_5, Baudelaire\_1, Bernal13\_2, Clautastrophe\_2, Constella\_4, DmpstrDiver\_8, Duke13\_5, Ellson\_2, EricMillard\_9, Footloose\_1, Hughesyang\_8, Hum25\_1, Ibrahim\_2, Jobypre\_2, Jubie\_2, Kalah2\_9, Kingsolomon\_2, KirDoubleO7\_2, Lolly9\_2, Lumos\_2, Mendokysei\_1, Minerva\_8, MiniLon\_2, MiniMac\_2, MsGreen\_2, Nairb\_2, Nette\_1, Nicholas\_2, Odette\_8, Optimus\_6, P3MA\_1, PhaoMing\_83, Phoebus\_9, Red305\_2, RonRayGun\_2, Snenia\_2, Thibault\_5, ThreeRngTarjay\_8, TriFive\_2, Whitty\_2, ZenTime222\_2,

**Summary by start number:**

Start 4:

- Found in 1 of 104 ( 1.0% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: PhaoMing\_83 (UNK),

Start 5:

- Found in 5 of 104 ( 4.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 40.0% of time when present
- Phage (with cluster) where this start called: BrainDrainer\_1 (L4), Douzhi\_1 (L4),

Start 10:

- Found in 8 of 104 ( 7.7% ) of genes in pham
- Manual Annotations of this start: 7 of 80
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bernal13\_2 (T), Ibrahim\_2 (T), Mendokysei\_1 (T), Nairb\_2 (T), Nette\_1 (T), RonRayGun\_2 (T), Whitty\_2 (T), ZenTime222\_2 (T),

Start 12:

- Found in 6 of 104 ( 5.8% ) of genes in pham
- Manual Annotations of this start: 1 of 80
- Called 16.7% of time when present
- Phage (with cluster) where this start called: P3MA\_1 (singleton),

Start 14:

- Found in 2 of 104 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 1 of 80
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Whirlwind\_3 (L3),

Start 15:

- Found in 62 of 104 ( 59.6% ) of genes in pham
- Manual Annotations of this start: 43 of 80
- Called 95.2% of time when present
- Phage (with cluster) where this start called: Archie\_2 (L2), Baoshan\_2 (L2), Bazzle\_2 (L2), Bellis\_2 (L3), BigCheese\_2 (L2), BobsGarage\_2 (L2), BourbonZero\_2 (L3), Breezona\_2 (L2), Bromden\_1 (L4), Chaser\_1 (L4), ChutneyChips\_1 (L4), Claus\_2 (L2), Crossroads\_2 (L2), DHan\_2 (L2), DanBing\_2 (L2), Douge\_1 (L4), DrSeegs\_2 (L2), DuncansLeg\_2 (L3), DyoEdafos\_1 (L4), Faith1\_2 (L2), FarmResident\_1 (L4), Finemlucis\_2 (L2), Finnry\_2 (L3), Gabriela\_2 (L2), Gardann\_2 (L2), GuuelaD\_2 (L2), Hafay\_2 (L2), Itos\_2 (L2), Kahlid\_2 (L2), Kropertea\_1 (L4), Krypton555\_2 (L3), Lewan\_2 (L2), LilDestine\_2 (L2), LiyuLake\_2 (L3), Loadrie\_2 (L2), Lynnae\_2 (L2), Miley16\_2 (L2), MkaliMitinis3\_2 (L2), Moostard\_2 (L3), Netyap\_2 (L2), Nicholasp3\_2 (L2), OverPar\_2 (L2), PYPDinur\_1 (L4), Quby\_1 (L4), Rossetti\_2 (L2), Rumpelstiltskin\_2 (L2), Samty\_2 (L3), Sarshaun\_2 (L2), Sheng711\_1 (L4), SoJulia\_2 (L2), Soap141\_2 (L2), Tourach\_2 (L2), Underpass\_2 (L2), Vetrix\_2 (L2), Wigglewiggles\_2 (L2), Wilder\_2 (L2), Winky\_2 (L2), Zakai\_2 (L2), ZhongYanYuan\_2 (L2),

Start 16:

- Found in 15 of 104 ( 14.4% ) of genes in pham
- Manual Annotations of this start: 12 of 80
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Clautastrophe\_2 (L3), Ellson\_2 (L3), Jobypre\_2 (L3), Jubie\_2 (L3), Kingsolomon\_2 (L3), KirDoubleO7\_2 (L3), Lolly9\_2 (L3), Lumos\_2 (L3), MiniLon\_2 (L3), MiniMac\_2 (L3), MsGreen\_2 (L3), Nicholas\_2 (L3), Red305\_2 (L3), Snenia\_2 (L3), TriFive\_2 (L3),

Start 17:

- Found in 2 of 104 ( 1.9% ) of genes in pham
- Manual Annotations of this start: 2 of 80
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aegeus\_1 (L5), Baudelaire\_1 (L5),

Start 19:

- Found in 1 of 104 ( 1.0% ) of genes in pham
- Manual Annotations of this start: 1 of 80
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Footloose\_1 (singleton),

Start 20:

- Found in 12 of 104 ( 11.5% ) of genes in pham
- Manual Annotations of this start: 1 of 80
- Called 8.3% of time when present
- Phage (with cluster) where this start called: Hum25\_1 (FQ),

Start 22:

- Found in 14 of 104 ( 13.5% ) of genes in pham
- Manual Annotations of this start: 12 of 80
- Called 92.9% of time when present
- Phage (with cluster) where this start called: BAKA\_5 (J), Constella\_4 (J), DmpstrDiver\_8 (J), Duke13\_5 (J), EricMillard\_9 (J), Hughesyang\_8 (J), Kalah2\_9 (J), Minerva\_8 (J), Odette\_8 (J), Optimus\_6 (J), Phoebus\_9 (J), Thibault\_5 (J), ThreeRngTarjay\_8 (J),

**Summary by clusters:**

There are 9 clusters represented in this pham: FQ, singleton, J, L4, L5, L2, L3, UNK, T,

Info for manual annotations of cluster FQ:

- Start number 20 was manually annotated 1 time for cluster FQ.

Info for manual annotations of cluster J:

- Start number 22 was manually annotated 12 times for cluster J.

Info for manual annotations of cluster L2:

- Start number 15 was manually annotated 31 times for cluster L2.

Info for manual annotations of cluster L3:

- Start number 14 was manually annotated 1 time for cluster L3.
- Start number 15 was manually annotated 6 times for cluster L3.
- Start number 16 was manually annotated 12 times for cluster L3.

Info for manual annotations of cluster L4:

- Start number 15 was manually annotated 6 times for cluster L4.

Info for manual annotations of cluster L5:

- Start number 17 was manually annotated 2 times for cluster L5.

Info for manual annotations of cluster T:

- Start number 10 was manually annotated 7 times for cluster T.

### **Gene Information:**

Gene: Aegeus\_1 Start: 126, Stop: 497, Start Num: 17

Candidate Starts for Aegeus\_1:

(Start: 17 @126 has 2 MA's), (26, 153), (31, 192), (33, 210), (36, 234), (41, 273), (45, 297), (48, 303), (55, 357), (60, 372), (61, 381), (62, 384), (64, 393), (66, 399), (69, 450),

Gene: Archie\_2 Start: 442, Stop: 831, Start Num: 15

Candidate Starts for Archie\_2:

(Start: 15 @442 has 43 MA's), (28, 493), (34, 559), (46, 631), (60, 703), (64, 724), (67, 739), (70, 823),

Gene: BAKA\_5 Start: 2395, Stop: 2769, Start Num: 22

Candidate Starts for BAKA\_5:

(Start: 22 @2395 has 12 MA's), (46, 2554), (55, 2614), (56, 2617), (64, 2650),

Gene: Baoshan\_2 Start: 489, Stop: 878, Start Num: 15

Candidate Starts for Baoshan\_2:

(Start: 15 @489 has 43 MA's), (26, 531), (28, 540), (34, 606), (37, 615), (52, 705), (60, 750), (64, 771),

Gene: Baudelaire\_1 Start: 126, Stop: 497, Start Num: 17

Candidate Starts for Baudelaire\_1:

(Start: 17 @126 has 2 MA's), (26, 153), (31, 192), (33, 210), (36, 234), (41, 273), (45, 297), (48, 303), (55, 357), (60, 372), (61, 381), (62, 384), (64, 393), (66, 399), (69, 450),

Gene: Bazzle\_2 Start: 478, Stop: 867, Start Num: 15

Candidate Starts for Bazzle\_2:

(Start: 15 @478 has 43 MA's), (28, 529), (30, 547), (34, 595), (46, 667), (60, 739), (64, 760), (67, 775),

Gene: Bellis\_2 Start: 465, Stop: 842, Start Num: 15

Candidate Starts for Bellis\_2:

(Start: 15 @465 has 43 MA's), (34, 570), (45, 639), (62, 726), (64, 735), (66, 741),

Gene: Bernal13\_2 Start: 332, Stop: 724, Start Num: 10

Candidate Starts for Bernal13\_2:

(Start: 10 @332 has 7 MA's), (40, 500), (43, 515), (48, 533), (53, 572),

Gene: BigCheese\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for BigCheese\_2:

(Start: 15 @477 has 43 MA's), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: BobsGarage\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for BobsGarage\_2:

(Start: 15 @477 has 43 MA's), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: BourbonZero\_2 Start: 464, Stop: 853, Start Num: 15

Candidate Starts for BourbonZero\_2:

(Start: 15 @464 has 43 MA's), (29, 518), (34, 581), (45, 650), (62, 737), (64, 746), (66, 752),

Gene: BrainDrainer\_1 Start: 45, Stop: 518, Start Num: 5

Candidate Starts for BrainDrainer\_1:

(5, 45), (11, 123), (Start: 15 @129 has 43 MA's), (Start: 20 @150 has 1 MA's), (21, 153), (29, 183), (34, 246), (64, 411), (67, 426),

Gene: Breezona\_2 Start: 477, Stop: 866, Start Num: 15  
Candidate Starts for Breezona\_2:  
(Start: 15 @477 has 43 MA's), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Bromden\_1 Start: 131, Stop: 517, Start Num: 15  
Candidate Starts for Bromden\_1:  
(9, 116), (11, 125), (Start: 15 @131 has 43 MA's), (28, 179), (34, 245), (60, 389), (64, 410),

Gene: Chaser\_1 Start: 129, Stop: 518, Start Num: 15  
Candidate Starts for Chaser\_1:  
(11, 123), (Start: 15 @129 has 43 MA's), (Start: 20 @150 has 1 MA's), (21, 153), (29, 183), (34, 246),  
(37, 255), (64, 411),

Gene: ChutneyChips\_1 Start: 129, Stop: 518, Start Num: 15  
Candidate Starts for ChutneyChips\_1:  
(11, 123), (Start: 15 @129 has 43 MA's), (Start: 20 @150 has 1 MA's), (21, 153), (29, 183), (34, 246),  
(64, 411),

Gene: Claus\_2 Start: 489, Stop: 878, Start Num: 15  
Candidate Starts for Claus\_2:  
(Start: 15 @489 has 43 MA's), (26, 531), (28, 540), (34, 606), (37, 615), (52, 705), (60, 750), (64, 771),  
(66, 777), (67, 786), (69, 825),

Gene: Clautastrophe\_2 Start: 481, Stop: 852, Start Num: 16  
Candidate Starts for Clautastrophe\_2:  
(Start: 16 @481 has 12 MA's), (29, 517), (34, 580), (45, 649), (60, 724), (64, 745),

Gene: Constella\_4 Start: 1576, Stop: 1950, Start Num: 22  
Candidate Starts for Constella\_4:  
(Start: 22 @1576 has 12 MA's), (46, 1735), (55, 1795), (56, 1798), (64, 1831),

Gene: Crossroads\_2 Start: 477, Stop: 866, Start Num: 15  
Candidate Starts for Crossroads\_2:  
(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: DHan\_2 Start: 488, Stop: 877, Start Num: 15  
Candidate Starts for DHan\_2:  
(Start: 15 @488 has 43 MA's), (26, 530), (28, 539), (34, 605), (37, 614), (52, 704), (60, 749), (64, 770),  
(67, 785),

Gene: DanBing\_2 Start: 489, Stop: 878, Start Num: 15  
Candidate Starts for DanBing\_2:  
(Start: 15 @489 has 43 MA's), (26, 531), (28, 540), (34, 606), (37, 615), (52, 705), (60, 750), (64, 771),

Gene: DmpstrDiver\_8 Start: 2938, Stop: 3312, Start Num: 22  
Candidate Starts for DmpstrDiver\_8:  
(2, 2731), (3, 2740), (7, 2851), (Start: 12 @2905 has 1 MA's), (Start: 22 @2938 has 12 MA's), (46,  
3097), (55, 3157), (56, 3160), (64, 3193),

Gene: Douge\_1 Start: 129, Stop: 518, Start Num: 15  
Candidate Starts for Douge\_1:  
(5, 45), (11, 123), (Start: 15 @129 has 43 MA's), (Start: 20 @150 has 1 MA's), (21, 153), (29, 183), (34,  
246), (64, 411),

Gene: Douzhi\_1 Start: 45, Stop: 518, Start Num: 5

Candidate Starts for Douzhi\_1:

(5, 45), (11, 123), (Start: 15 @129 has 43 MA's), (Start: 20 @150 has 1 MA's), (21, 153), (29, 183), (34, 246), (64, 411), (67, 426),

Gene: DrSeegs\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for DrSeegs\_2:

(Start: 15 @477 has 43 MA's), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Duke13\_5 Start: 2323, Stop: 2697, Start Num: 22

Candidate Starts for Duke13\_5:

(Start: 22 @2323 has 12 MA's), (46, 2482), (55, 2542), (56, 2545), (64, 2578),

Gene: DuncansLeg\_2 Start: 466, Stop: 855, Start Num: 15

Candidate Starts for DuncansLeg\_2:

(Start: 15 @466 has 43 MA's), (29, 520), (34, 583), (45, 652), (64, 748),

Gene: DyoEdafos\_1 Start: 128, Stop: 517, Start Num: 15

Candidate Starts for DyoEdafos\_1:

(11, 122), (Start: 15 @128 has 43 MA's), (Start: 20 @149 has 1 MA's), (21, 152), (34, 245), (64, 410),

Gene: Ellson\_2 Start: 493, Stop: 864, Start Num: 16

Candidate Starts for Ellson\_2:

(Start: 16 @493 has 12 MA's), (29, 529), (34, 592), (45, 661), (64, 757),

Gene: EricMillard\_9 Start: 3043, Stop: 3417, Start Num: 22

Candidate Starts for EricMillard\_9:

(2, 2836), (3, 2845), (7, 2956), (Start: 22 @3043 has 12 MA's), (46, 3202), (55, 3262), (56, 3265), (64, 3298),

Gene: Faith1\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for Faith1\_2:

(Start: 15 @477 has 43 MA's), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: FarmResident\_1 Start: 129, Stop: 518, Start Num: 15

Candidate Starts for FarmResident\_1:

(11, 123), (Start: 15 @129 has 43 MA's), (Start: 20 @150 has 1 MA's), (21, 153), (29, 183), (34, 246), (64, 411),

Gene: Finemlucis\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for Finemlucis\_2:

(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Finnry\_2 Start: 465, Stop: 842, Start Num: 15

Candidate Starts for Finnry\_2:

(Start: 15 @465 has 43 MA's), (34, 570), (45, 639), (62, 726), (64, 735), (66, 741),

Gene: Footloose\_1 Start: 79, Stop: 444, Start Num: 19

Candidate Starts for Footloose\_1:

(13, 58), (18, 76), (Start: 19 @79 has 1 MA's), (23, 94), (25, 103), (31, 148), (34, 184), (39, 223), (41, 229), (51, 271), (64, 349),

Gene: Gabriela\_2 Start: 477, Stop: 866, Start Num: 15  
Candidate Starts for Gabriela\_2:  
(Start: 15 @477 has 43 MA's), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Gardann\_2 Start: 477, Stop: 866, Start Num: 15  
Candidate Starts for Gardann\_2:  
(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: GuuelaD\_2 Start: 477, Stop: 866, Start Num: 15  
Candidate Starts for GuuelaD\_2:  
(Start: 15 @477 has 43 MA's), (27, 525), (29, 531), (34, 594), (37, 603), (52, 693), (59, 735), (60, 738), (64, 759),

Gene: Hafay\_2 Start: 477, Stop: 866, Start Num: 15  
Candidate Starts for Hafay\_2:  
(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Hughesyang\_8 Start: 2938, Stop: 3312, Start Num: 22  
Candidate Starts for Hughesyang\_8:  
(2, 2731), (3, 2740), (7, 2851), (Start: 12 @2905 has 1 MA's), (Start: 22 @2938 has 12 MA's), (46, 3097), (55, 3157), (56, 3160), (64, 3193),

Gene: Hum25\_1 Start: 52, Stop: 471, Start Num: 20  
Candidate Starts for Hum25\_1:  
(Start: 20 @52 has 1 MA's), (33, 130), (42, 202), (47, 223), (50, 238), (54, 286), (63, 316), (65, 325), (68, 343), (70, 427),

Gene: Ibrahim\_2 Start: 332, Stop: 724, Start Num: 10  
Candidate Starts for Ibrahim\_2:  
(Start: 10 @332 has 7 MA's), (40, 500), (43, 515), (48, 533), (53, 572),

Gene: Itos\_2 Start: 477, Stop: 866, Start Num: 15  
Candidate Starts for Itos\_2:  
(Start: 15 @477 has 43 MA's), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Jobypre\_2 Start: 481, Stop: 852, Start Num: 16  
Candidate Starts for Jobypre\_2:  
(Start: 16 @481 has 12 MA's), (29, 517), (34, 580), (45, 649), (60, 724), (64, 745),

Gene: Jubie\_2 Start: 481, Stop: 852, Start Num: 16  
Candidate Starts for Jubie\_2:  
(Start: 16 @481 has 12 MA's), (29, 517), (34, 580), (45, 649), (60, 724), (64, 745),

Gene: Kahlid\_2 Start: 477, Stop: 866, Start Num: 15  
Candidate Starts for Kahlid\_2:  
(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Kalah2\_9 Start: 3357, Stop: 3731, Start Num: 22  
Candidate Starts for Kalah2\_9:  
(2, 3150), (3, 3159), (7, 3270), (Start: 12 @3324 has 1 MA's), (Start: 22 @3357 has 12 MA's), (46, 3516), (55, 3576), (56, 3579), (64, 3612),

Gene: Kingsolomon\_2 Start: 481, Stop: 852, Start Num: 16

Candidate Starts for Kingsolomon\_2:

(Start: 16 @481 has 12 MA's), (29, 517), (34, 580), (45, 649), (60, 724), (64, 745),

Gene: KirDoubleO7\_2 Start: 493, Stop: 864, Start Num: 16

Candidate Starts for KirDoubleO7\_2:

(Start: 16 @493 has 12 MA's), (29, 529), (34, 592), (45, 661), (64, 757),

Gene: Kropertea\_1 Start: 129, Stop: 518, Start Num: 15

Candidate Starts for Kropertea\_1:

(11, 123), (Start: 15 @129 has 43 MA's), (Start: 20 @150 has 1 MA's), (21, 153), (29, 183), (34, 246), (59, 387), (60, 390), (64, 411),

Gene: Krypton555\_2 Start: 464, Stop: 841, Start Num: 15

Candidate Starts for Krypton555\_2:

(Start: 14 @461 has 1 MA's), (Start: 15 @464 has 43 MA's), (34, 569), (45, 638), (62, 725), (64, 734), (66, 740),

Gene: Lewan\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for Lewan\_2:

(Start: 15 @477 has 43 MA's), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: LilDestine\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for LilDestine\_2:

(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: LiyuLake\_2 Start: 466, Stop: 855, Start Num: 15

Candidate Starts for LiyuLake\_2:

(Start: 15 @466 has 43 MA's), (29, 520), (34, 583), (45, 652), (64, 748),

Gene: Loadrie\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for Loadrie\_2:

(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Lolly9\_2 Start: 481, Stop: 852, Start Num: 16

Candidate Starts for Lolly9\_2:

(Start: 16 @481 has 12 MA's), (29, 517), (34, 580), (45, 649), (62, 736), (64, 745),

Gene: Lumos\_2 Start: 481, Stop: 852, Start Num: 16

Candidate Starts for Lumos\_2:

(Start: 16 @481 has 12 MA's), (29, 517), (34, 580), (45, 649), (60, 724), (64, 745),

Gene: Lynnae\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for Lynnae\_2:

(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Mendokysei\_1 Start: 90, Stop: 485, Start Num: 10

Candidate Starts for Mendokysei\_1:

(6, 18), (Start: 10 @90 has 7 MA's), (46, 288), (48, 291), (53, 330), (64, 384),

Gene: Miley16\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for Miley16\_2:

(Start: 15 @477 has 43 MA's), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Minerva\_8 Start: 2817, Stop: 3191, Start Num: 22  
Candidate Starts for Minerva\_8:  
(2, 2610), (3, 2619), (7, 2730), (Start: 12 @2784 has 1 MA's), (Start: 22 @2817 has 12 MA's), (46, 2976), (55, 3036), (56, 3039), (64, 3072),

Gene: MiniLon\_2 Start: 481, Stop: 852, Start Num: 16  
Candidate Starts for MiniLon\_2:  
(Start: 16 @481 has 12 MA's), (29, 517), (34, 580), (45, 649), (62, 736), (64, 745),

Gene: MiniMac\_2 Start: 481, Stop: 852, Start Num: 16  
Candidate Starts for MiniMac\_2:  
(Start: 16 @481 has 12 MA's), (34, 580), (45, 649), (62, 736), (64, 745),

Gene: MkaliMitinis3\_2 Start: 477, Stop: 866, Start Num: 15  
Candidate Starts for MkaliMitinis3\_2:  
(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Moostard\_2 Start: 465, Stop: 842, Start Num: 15  
Candidate Starts for Moostard\_2:  
(Start: 15 @465 has 43 MA's), (34, 570), (45, 639), (62, 726), (64, 735), (66, 741),

Gene: MsGreen\_2 Start: 481, Stop: 852, Start Num: 16  
Candidate Starts for MsGreen\_2:  
(Start: 16 @481 has 12 MA's), (29, 517), (34, 580), (45, 649), (60, 724), (64, 745),

Gene: Nairb\_2 Start: 332, Stop: 724, Start Num: 10  
Candidate Starts for Nairb\_2:  
(Start: 10 @332 has 7 MA's), (40, 500), (43, 515), (48, 533), (53, 572),

Gene: Nette\_1 Start: 90, Stop: 485, Start Num: 10  
Candidate Starts for Nette\_1:  
(6, 18), (Start: 10 @90 has 7 MA's), (46, 288), (48, 291), (53, 330), (64, 384),

Gene: Netyap\_2 Start: 477, Stop: 866, Start Num: 15  
Candidate Starts for Netyap\_2:  
(Start: 15 @477 has 43 MA's), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Nicholas\_2 Start: 481, Stop: 852, Start Num: 16  
Candidate Starts for Nicholas\_2:  
(Start: 16 @481 has 12 MA's), (29, 517), (34, 580), (45, 649), (60, 724), (64, 745),

Gene: Nicholasp3\_2 Start: 477, Stop: 866, Start Num: 15  
Candidate Starts for Nicholasp3\_2:  
(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Odette\_8 Start: 2296, Stop: 2670, Start Num: 22  
Candidate Starts for Odette\_8:  
(2, 2089), (3, 2098), (7, 2209), (Start: 22 @2296 has 12 MA's), (46, 2455), (55, 2515), (56, 2518), (64, 2551),

Gene: Optimus\_6 Start: 2323, Stop: 2697, Start Num: 22  
Candidate Starts for Optimus\_6:  
(Start: 22 @2323 has 12 MA's), (46, 2482), (55, 2542), (56, 2545), (64, 2578),

Gene: OverPar\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for OverPar\_2:

(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: P3MA\_1 Start: 159, Stop: 587, Start Num: 12

Candidate Starts for P3MA\_1:

(Start: 12 @159 has 1 MA's), (32, 255), (35, 291), (44, 366), (57, 444),

Gene: PYPDinur\_1 Start: 129, Stop: 518, Start Num: 15

Candidate Starts for PYPDinur\_1:

(5, 45), (11, 123), (Start: 15 @129 has 43 MA's), (Start: 20 @150 has 1 MA's), (21, 153), (29, 183), (34, 246), (64, 411), (67, 426),

Gene: PhaoMing\_83 Start: 48936, Stop: 438, Start Num: 4

Candidate Starts for PhaoMing\_83:

(1, 48582), (4, 48936), (8, 49002), (18, 49050), (Start: 22 @49065 has 12 MA's), (24, 49071), (27, 49083), (30, 49104), (33, 49134), (35, 49155), (36, 49158), (37, 49161), (38, 49188), (43, 49209), (48, 49227), (49, 49230), (52, 49254), (53, 49266), (58, 49293), (60, 49299), (61, 49308), (62, 49311), (64, 49320), (66, 49326),

Gene: Phoebus\_9 Start: 3043, Stop: 3417, Start Num: 22

Candidate Starts for Phoebus\_9:

(2, 2836), (3, 2845), (7, 2956), (Start: 22 @3043 has 12 MA's), (46, 3202), (55, 3262), (56, 3265), (64, 3298),

Gene: Quby\_1 Start: 129, Stop: 518, Start Num: 15

Candidate Starts for Quby\_1:

(11, 123), (Start: 15 @129 has 43 MA's), (Start: 20 @150 has 1 MA's), (21, 153), (29, 183), (34, 246), (64, 411),

Gene: Red305\_2 Start: 481, Stop: 852, Start Num: 16

Candidate Starts for Red305\_2:

(Start: 16 @481 has 12 MA's), (29, 517), (34, 580), (45, 649), (60, 724), (64, 745),

Gene: RonRayGun\_2 Start: 332, Stop: 724, Start Num: 10

Candidate Starts for RonRayGun\_2:

(Start: 10 @332 has 7 MA's), (40, 500), (43, 515), (48, 533), (53, 572),

Gene: Rossetti\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for Rossetti\_2:

(Start: 15 @477 has 43 MA's), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Rumpelstiltskin\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for Rumpelstiltskin\_2:

(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Samty\_2 Start: 465, Stop: 842, Start Num: 15

Candidate Starts for Samty\_2:

(Start: 15 @465 has 43 MA's), (34, 570), (45, 639), (62, 726), (64, 735), (66, 741),

Gene: Sarshaun\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for Sarshaun\_2:

(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Sheng711\_1 Start: 129, Stop: 518, Start Num: 15

Candidate Starts for Sheng711\_1:

(5, 45), (11, 123), (Start: 15 @129 has 43 MA's), (Start: 20 @150 has 1 MA's), (21, 153), (29, 183), (34, 246), (64, 411), (67, 426),

Gene: Snenia\_2 Start: 481, Stop: 852, Start Num: 16

Candidate Starts for Snenia\_2:

(Start: 16 @481 has 12 MA's), (29, 517), (34, 580), (45, 649), (60, 724), (64, 745),

Gene: SoJulia\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for SoJulia\_2:

(Start: 15 @477 has 43 MA's), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Soap141\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for Soap141\_2:

(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Thibault\_5 Start: 2323, Stop: 2697, Start Num: 22

Candidate Starts for Thibault\_5:

(Start: 22 @2323 has 12 MA's), (46, 2482), (55, 2542), (56, 2545), (64, 2578),

Gene: ThreeRngTarjay\_8 Start: 2813, Stop: 3187, Start Num: 22

Candidate Starts for ThreeRngTarjay\_8:

(2, 2606), (3, 2615), (7, 2726), (Start: 12 @2780 has 1 MA's), (Start: 22 @2813 has 12 MA's), (46, 2972), (55, 3032), (56, 3035), (64, 3068),

Gene: Tourach\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for Tourach\_2:

(Start: 15 @477 has 43 MA's), (28, 528), (30, 546), (34, 594), (45, 663), (52, 693), (60, 738), (64, 759), (67, 774),

Gene: TriFive\_2 Start: 481, Stop: 852, Start Num: 16

Candidate Starts for TriFive\_2:

(Start: 16 @481 has 12 MA's), (29, 517), (34, 580), (45, 649), (60, 724), (64, 745),

Gene: Underpass\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for Underpass\_2:

(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Vetrix\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for Vetrix\_2:

(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Whirlwind\_3 Start: 461, Stop: 841, Start Num: 14

Candidate Starts for Whirlwind\_3:

(Start: 14 @461 has 1 MA's), (Start: 15 @464 has 43 MA's), (34, 569), (45, 638), (62, 725), (64, 734),

Gene: Whitty\_2 Start: 332, Stop: 724, Start Num: 10

Candidate Starts for Whitty\_2:

(Start: 10 @332 has 7 MA's), (40, 500), (43, 515), (48, 533), (53, 572),

Gene: Wigglewiggle\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for Wigglewiggle\_2:

(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Wilder\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for Wilder\_2:

(Start: 15 @477 has 43 MA's), (30, 546), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Winky\_2 Start: 477, Stop: 866, Start Num: 15

Candidate Starts for Winky\_2:

(Start: 15 @477 has 43 MA's), (34, 594), (46, 666), (60, 738), (64, 759),

Gene: Zakai\_2 Start: 465, Stop: 854, Start Num: 15

Candidate Starts for Zakai\_2:

(Start: 15 @465 has 43 MA's), (34, 582), (46, 654), (60, 726), (64, 747),

Gene: ZenTime222\_2 Start: 332, Stop: 724, Start Num: 10

Candidate Starts for ZenTime222\_2:

(Start: 10 @332 has 7 MA's), (40, 500), (43, 515), (48, 533), (53, 572),

Gene: ZhongYanYuan\_2 Start: 489, Stop: 878, Start Num: 15

Candidate Starts for ZhongYanYuan\_2:

(Start: 15 @489 has 43 MA's), (26, 531), (28, 540), (34, 606), (37, 615), (52, 705), (60, 750), (64, 771),