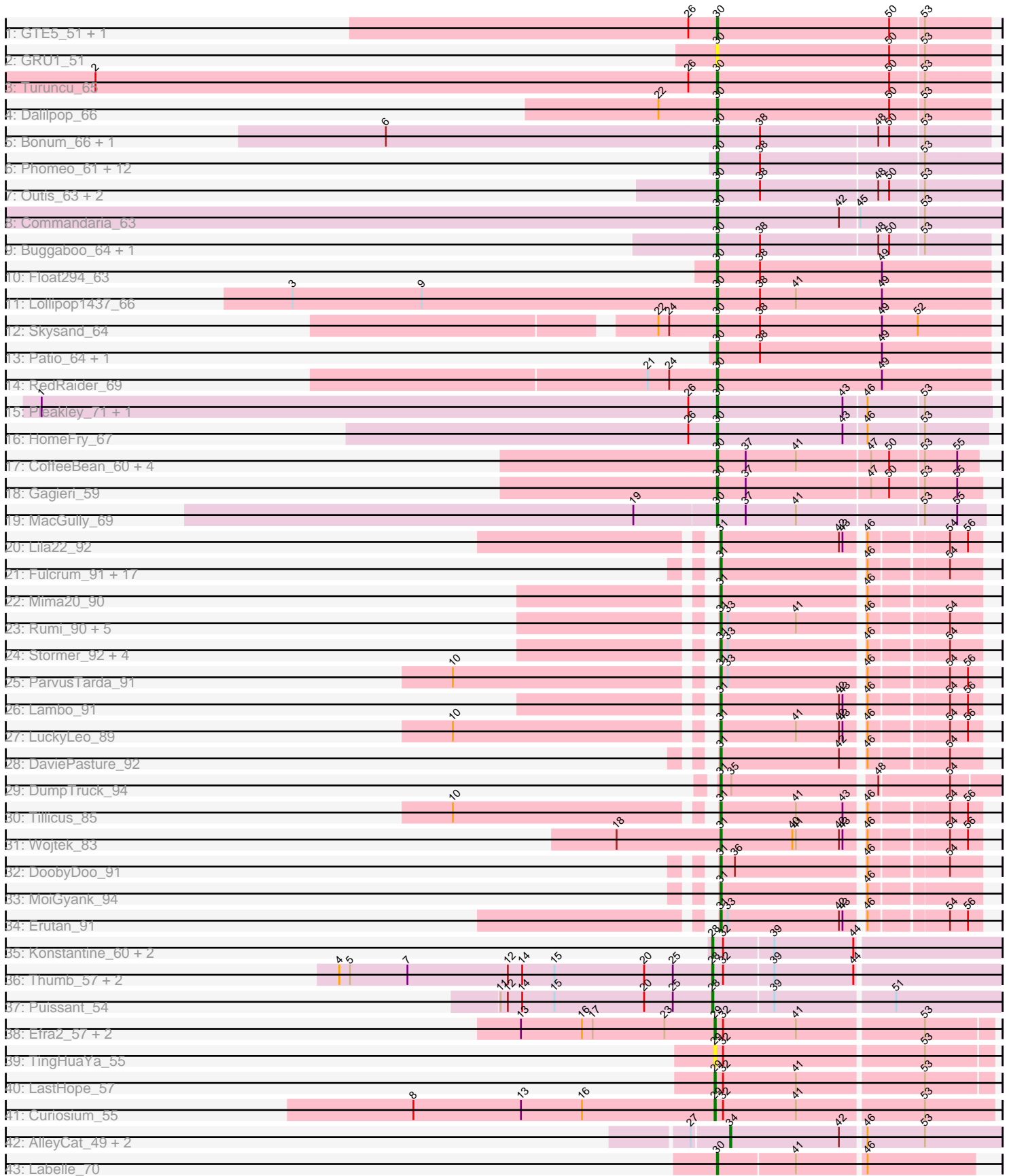


Pham 304882



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 304882 Report

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

Pham number 304882 has 100 members, 9 are drafts.

Phages represented in each track:

- Track 1 : GTE5\_51, Flapper\_65
- Track 2 : GRU1\_51
- Track 3 : Turuncu\_65
- Track 4 : Dalilpop\_66
- Track 5 : Bonum\_66, Kabluna\_65
- Track 6 : Phomeo\_61, Emianna\_62, GTE8\_51, Wheezy\_62, Jifall16\_61, Tracker\_62, Arti\_61, Foxboro\_63, NatB6\_62, Kurt\_62, KidneyBean\_62, NovumRegina\_62, GrootJr\_64
- Track 7 : Outis\_63, StarStruck\_63, MerCougar\_64
- Track 8 : Commandaria\_63
- Track 9 : Buggaboo\_64, SuperSulley\_64
- Track 10 : Float294\_63
- Track 11 : Lollipop1437\_66
- Track 12 : Skysand\_64
- Track 13 : Patio\_64, Ennea\_69
- Track 14 : RedRaider\_69
- Track 15 : Pleakley\_71, Fury\_71
- Track 16 : HomeFry\_67
- Track 17 : CoffeeBean\_60, Maselop\_60, Apiary\_60, Braxoaddie\_60, Polyyuki\_60
- Track 18 : Gagieri\_59
- Track 19 : MacGully\_69
- Track 20 : Lila22\_92
- Track 21 : Fulcrum\_91, OtterstedtS21\_92, Gibbin\_93, Patos\_96, Sampudon\_93, LavAbarElk\_91, Sadboi\_91, Jalebi\_91, Alephilan\_94, GretelLyn\_91, Pywacket\_89, Rukungu\_92, Zany\_90, GOATification\_91, Rota\_90, Yikes\_92, BirthdayBoy\_94, NorManre\_96
- Track 22 : Mima20\_90
- Track 23 : Rumi\_90, Alyssamiracle\_92, Riduram\_88, Jamemuya19\_87, RazorC\_89, NovaSharks\_91
- Track 24 : Stormer\_92, Genamy16\_92, Avian\_87, Astralis\_89, Charminar\_88
- Track 25 : ParvusTarda\_91
- Track 26 : Lambo\_91
- Track 27 : LuckyLeo\_89
- Track 28 : DaviePasture\_92
- Track 29 : DumpTruck\_94
- Track 30 : Tillicus\_85
- Track 31 : Wojtek\_83

- Track 32 : DoobyDoo\_91
- Track 33 : MoiGyank\_94
- Track 34 : Erutan\_91
- Track 35 : Konstantine\_60, BobtimousPrime\_58, Cborch11\_58
- Track 36 : Thumb\_57, Oaker\_56, Megatron06\_58
- Track 37 : Puissant\_54
- Track 38 : Efra2\_57, Yunkel11\_56, Guanica15\_56
- Track 39 : TingHuaYa\_55
- Track 40 : LastHope\_57
- Track 41 : Curiosium\_55
- Track 42 : AlleyCat\_49, Psycho\_47, Dadosky\_49
- Track 43 : Labelle\_70

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

The start number called the most often in the published annotations is 30, it was called in 40 of the 91 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Apiary\_60, Arti\_61, Bonum\_66, Braxoaddie\_60, Buggaboo\_64, CoffeeBean\_60, Commandaria\_63, Dalilpop\_66, Emianna\_62, Ennea\_69, Flapper\_65, Float294\_63, Foxboro\_63, Fury\_71, GRU1\_51, GTE5\_51, GTE8\_51, Gagieri\_59, GrootJr\_64, HomeFry\_67, Jifall16\_61, Kabluna\_65, KidneyBean\_62, Kurt\_62, Labelle\_70, Lollipop1437\_66, MacGully\_69, Maselop\_60, MerCougar\_64, NatB6\_62, NovumRegina\_62, Outis\_63, Patio\_64, Phomeo\_61, Pleakley\_71, Polyyuki\_60, RedRaider\_69, Skysand\_64, StarStruck\_63, SuperSulley\_64, Tracker\_62, Turuncu\_65, Wheezy\_62,

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

- 

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

- Alephilan\_94, AlleyCat\_49, Alyssamiracle\_92, Astralis\_89, Avian\_87, BirthdayBoy\_94, BobtimousPrime\_58, Cborch11\_58, Charminar\_88, Curiosium\_55, Dadosky\_49, DaviePasture\_92, DoobyDoo\_91, DumpTruck\_94, Efra2\_57, Erutan\_91, Fulcrum\_91, GOATification\_91, Genamy16\_92, Gibbin\_93, Gretellyn\_91, Guanica15\_56, Jalebi\_91, Jamemuya19\_87, Konstantine\_60, Lambo\_91, LastHope\_57, LavAbarElk\_91, Lila22\_92, LuckyLeo\_89, Megatron06\_58, Mima20\_90, MoiGyank\_94, NorManre\_96, NovaSharks\_91, Oaker\_56, OtterstedtS21\_92, ParvusTarda\_91, Patos\_96, Psycho\_47, Puissant\_54, Pywacket\_89, RazorC\_89, Riduram\_88, Rota\_90, Rukungu\_92, Rumi\_90, Sadboi\_91, Sampudon\_93, Stormer\_92, Thumb\_57, Tillicus\_85, TingHuaYa\_55, Wojtek\_83, Yikes\_92, Yunkel11\_56, Zany\_90,

**Summary by start number:**

Start 28:

- Found in 7 of 100 ( 7.0% ) of genes in pham
- Manual Annotations of this start: 7 of 91
- Called 100.0% of time when present

- Phage (with cluster) where this start called: BobtimousPrime\_58 (H1), Cborch11\_58 (H1), Konstantine\_60 (H1), Megatron06\_58 (H1), Oaker\_56 (H1), Puissant\_54 (H1), Thumb\_57 (H1),

#### Start 29:

- Found in 6 of 100 ( 6.0% ) of genes in pham
- Manual Annotations of this start: 5 of 91
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Curiosium\_55 (K1), Efra2\_57 (K1), Guanica15\_56 (K1), LastHope\_57 (K1), TingHuaYa\_55 (K1), Yunkel11\_56 (K1),

#### Start 30:

- Found in 43 of 100 ( 43.0% ) of genes in pham
- Manual Annotations of this start: 40 of 91
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Apiary\_60 (CR6), Arti\_61 (CR2), Bonum\_66 (CR2), Braxoaddie\_60 (CR6), Buggaboo\_64 (CR2), CoffeeBean\_60 (CR6), Commandaria\_63 (CR2), Dalilpop\_66 (CR1), Emianna\_62 (CR2), Ennea\_69 (CR3), Flapper\_65 (CR1), Float294\_63 (CR3), Foxboro\_63 (CR2), Fury\_71 (CR5), GRU1\_51 (CR1), GTE5\_51 (CR1), GTE8\_51 (CR2), Gagieri\_59 (CR6), GrootJr\_64 (CR2), HomeFry\_67 (CR5), Jifall16\_61 (CR2), Kabluna\_65 (CR2), KidneyBean\_62 (CR2), Kurt\_62 (CR2), Labelle\_70 (U), Lollipop1437\_66 (CR3), MacGully\_69 (CR7), Maselop\_60 (CR6), MerCougar\_64 (CR2), NatB6\_62 (CR2), NovumRegina\_62 (CR2), Outis\_63 (CR2), Patio\_64 (CR3), Phomeo\_61 (CR2), Pleakley\_71 (CR5), Polyyuki\_60 (CR6), RedRaider\_69 (CR3), Skysand\_64 (CR3), StarStruck\_63 (CR2), SuperSulley\_64 (CR2), Tracker\_62 (CR2), Turuncu\_65 (CR1), Wheezy\_62 (CR2),

#### Start 31:

- Found in 41 of 100 ( 41.0% ) of genes in pham
- Manual Annotations of this start: 36 of 91
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alephilan\_94 (DV), Alyssamiracle\_92 (DV), Astralis\_89 (DV), Avian\_87 (DV), BirthdayBoy\_94 (DV), Charminar\_88 (DV), DaviePasture\_92 (DV), DoobyDoo\_91 (DV), DumpTruck\_94 (DV), Erutan\_91 (DV), Fulcrum\_91 (DV), GOATification\_91 (DV), Genamy16\_92 (DV), Gibbin\_93 (DV), GretelLyn\_91 (DV), Jalebi\_91 (DV), Jamemuya19\_87 (DV), Lambo\_91 (DV), LavAbarElk\_91 (DV), Lila22\_92 (DV), LuckyLeo\_89 (DV), Mima20\_90 (DV), MoiGyank\_94 (DV), NorManre\_96 (DV), NovaSharks\_91 (DV), OtterstedtS21\_92 (DV), ParvusTarda\_91 (DV), Patos\_96 (DV), Pywacket\_89 (DV), RazorC\_89 (DV), Riduram\_88 (DV), Rota\_90 (DV), Rukungu\_92 (DV), Rumi\_90 (DV), Sadboi\_91 (DV), Sampudon\_93 (DV), Stormer\_92 (DV), Tillicus\_85 (DV), Wojtek\_83 (DV), Yikes\_92 (DV), Zany\_90 (DV),

#### Start 34:

- Found in 3 of 100 ( 3.0% ) of genes in pham
- Manual Annotations of this start: 3 of 91
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AlleyCat\_49 (K5), Dadosky\_49 (K5), Psycho\_47 (K5),

### Summary by clusters:

There are 11 clusters represented in this pham: CR2, CR3, CR1, CR6, CR7, CR5, H1, K1, U, K5, DV,

Info for manual annotations of cluster CR1:

- Start number 30 was manually annotated 3 times for cluster CR1.

Info for manual annotations of cluster CR2:

- Start number 30 was manually annotated 20 times for cluster CR2.

Info for manual annotations of cluster CR3:

- Start number 30 was manually annotated 6 times for cluster CR3.

Info for manual annotations of cluster CR5:

- Start number 30 was manually annotated 3 times for cluster CR5.

Info for manual annotations of cluster CR6:

- Start number 30 was manually annotated 6 times for cluster CR6.

Info for manual annotations of cluster CR7:

- Start number 30 was manually annotated 1 time for cluster CR7.

Info for manual annotations of cluster DV:

- Start number 31 was manually annotated 36 times for cluster DV.

Info for manual annotations of cluster H1:

- Start number 28 was manually annotated 7 times for cluster H1.

Info for manual annotations of cluster K1:

- Start number 29 was manually annotated 5 times for cluster K1.

Info for manual annotations of cluster K5:

- Start number 34 was manually annotated 3 times for cluster K5.

Info for manual annotations of cluster U:

- Start number 30 was manually annotated 1 time for cluster U.

### ***Gene Information:***

Gene: Alephilan\_94 Start: 64646, Stop: 64846, Start Num: 31

Candidate Starts for Alephilan\_94:

(Start: 31 @64646 has 36 MA's), (46, 64760), (54, 64820),

Gene: AlleyCat\_49 Start: 36887, Stop: 37105, Start Num: 34

Candidate Starts for AlleyCat\_49:

(27, 36857), (Start: 34 @36887 has 3 MA's), (42, 36977), (46, 36995), (53, 37043),

Gene: Alyssamiracle\_92 Start: 62607, Stop: 62807, Start Num: 31

Candidate Starts for Alyssamiracle\_92:

(Start: 31 @62607 has 36 MA's), (33, 62613), (41, 62670), (46, 62721), (54, 62781),

Gene: Apiary\_60 Start: 45998, Stop: 45786, Start Num: 30

Candidate Starts for Apiary\_60:

(Start: 30 @45998 has 40 MA's), (37, 45974), (41, 45932), (47, 45872), (50, 45857), (53, 45830), (55, 45803),

Gene: Arti\_61 Start: 48483, Stop: 48253, Start Num: 30

Candidate Starts for Arti\_61:

(Start: 30 @48483 has 40 MA's), (38, 48447), (53, 48315),

Gene: Astralis\_89 Start: 62134, Stop: 62334, Start Num: 31

Candidate Starts for Astralis\_89:

(Start: 31 @62134 has 36 MA's), (33, 62140), (46, 62248), (54, 62308),

Gene: Avian\_87 Start: 62369, Stop: 62569, Start Num: 31

Candidate Starts for Avian\_87:

(Start: 31 @62369 has 36 MA's), (33, 62375), (46, 62483), (54, 62543),

Gene: BirthdayBoy\_94 Start: 64659, Stop: 64859, Start Num: 31

Candidate Starts for BirthdayBoy\_94:

(Start: 31 @64659 has 36 MA's), (46, 64773), (54, 64833),

Gene: BobtimousPrime\_58 Start: 44853, Stop: 45083, Start Num: 28

Candidate Starts for BobtimousPrime\_58:

(Start: 28 @44853 has 7 MA's), (32, 44862), (39, 44901), (44, 44967),

Gene: Bonum\_66 Start: 49270, Stop: 49049, Start Num: 30

Candidate Starts for Bonum\_66:

(6, 49546), (Start: 30 @49270 has 40 MA's), (38, 49234), (48, 49138), (50, 49129), (53, 49102),

Gene: Braxoaddie\_60 Start: 45987, Stop: 45775, Start Num: 30

Candidate Starts for Braxoaddie\_60:

(Start: 30 @45987 has 40 MA's), (37, 45963), (41, 45921), (47, 45861), (50, 45846), (53, 45819), (55, 45792),

Gene: Buggaboo\_64 Start: 49827, Stop: 49606, Start Num: 30

Candidate Starts for Buggaboo\_64:

(Start: 30 @49827 has 40 MA's), (38, 49791), (48, 49695), (50, 49686), (53, 49659),

Gene: Cborch11\_58 Start: 44408, Stop: 44638, Start Num: 28

Candidate Starts for Cborch11\_58:

(Start: 28 @44408 has 7 MA's), (32, 44417), (39, 44456), (44, 44522),

Gene: Charminar\_88 Start: 61926, Stop: 62126, Start Num: 31

Candidate Starts for Charminar\_88:

(Start: 31 @61926 has 36 MA's), (33, 61932), (46, 62040), (54, 62100),

Gene: CoffeeBean\_60 Start: 45945, Stop: 45733, Start Num: 30

Candidate Starts for CoffeeBean\_60:

(Start: 30 @45945 has 40 MA's), (37, 45921), (41, 45879), (47, 45819), (50, 45804), (53, 45777), (55, 45750),

Gene: Commandaria\_63 Start: 49702, Stop: 49472, Start Num: 30

Candidate Starts for Commandaria\_63:

(Start: 30 @49702 has 40 MA's), (42, 49600), (45, 49585), (53, 49534),

Gene: Curiosium\_55 Start: 37814, Stop: 38038, Start Num: 29

Candidate Starts for Curiosium\_55:

(8, 37562), (13, 37652), (16, 37703), (Start: 29 @37814 has 5 MA's), (32, 37820), (41, 37880), (53, 37982),

Gene: Dadosky\_49 Start: 36889, Stop: 37107, Start Num: 34

Candidate Starts for Dadosky\_49:

(27, 36859), (Start: 34 @36889 has 3 MA's), (42, 36979), (46, 36997), (53, 37045),

Gene: Dalilpop\_66 Start: 50690, Stop: 50466, Start Num: 30

Candidate Starts for Dalilpop\_66:

(22, 50738), (Start: 30 @50690 has 40 MA's), (50, 50546), (53, 50519),

Gene: DaviePasture\_92 Start: 64175, Stop: 64375, Start Num: 31

Candidate Starts for DaviePasture\_92:

(Start: 31 @64175 has 36 MA's), (42, 64274), (46, 64289), (54, 64349),

Gene: DoobyDoo\_91 Start: 62959, Stop: 63159, Start Num: 31

Candidate Starts for DoobyDoo\_91:

(Start: 31 @62959 has 36 MA's), (36, 62971), (46, 63073), (54, 63133),

Gene: DumpTruck\_94 Start: 64144, Stop: 64362, Start Num: 31

Candidate Starts for DumpTruck\_94:

(Start: 31 @64144 has 36 MA's), (35, 64153), (48, 64267), (54, 64324),

Gene: Efra2\_57 Start: 38957, Stop: 39178, Start Num: 29

Candidate Starts for Efra2\_57:

(13, 38795), (16, 38846), (17, 38855), (23, 38915), (Start: 29 @38957 has 5 MA's), (32, 38963), (41, 39023), (53, 39125),

Gene: Emianna\_62 Start: 49726, Stop: 49496, Start Num: 30

Candidate Starts for Emianna\_62:

(Start: 30 @49726 has 40 MA's), (38, 49690), (53, 49558),

Gene: Ennea\_69 Start: 50721, Stop: 50494, Start Num: 30

Candidate Starts for Ennea\_69:

(Start: 30 @50721 has 40 MA's), (38, 50685), (49, 50583),

Gene: Erutan\_91 Start: 64022, Stop: 64222, Start Num: 31

Candidate Starts for Erutan\_91:

(Start: 31 @64022 has 36 MA's), (33, 64028), (42, 64121), (43, 64124), (46, 64136), (54, 64196), (56, 64211),

Gene: Flapper\_65 Start: 49880, Stop: 49656, Start Num: 30

Candidate Starts for Flapper\_65:

(26, 49904), (Start: 30 @49880 has 40 MA's), (50, 49736), (53, 49709),

Gene: Float294\_63 Start: 50556, Stop: 50329, Start Num: 30

Candidate Starts for Float294\_63:

(Start: 30 @50556 has 40 MA's), (38, 50520), (49, 50418),

Gene: Foxboro\_63 Start: 50235, Stop: 50005, Start Num: 30

Candidate Starts for Foxboro\_63:  
(Start: 30 @50235 has 40 MA's), (38, 50199), (53, 50067),

Gene: Fulcrum\_91 Start: 64168, Stop: 64368, Start Num: 31  
Candidate Starts for Fulcrum\_91:  
(Start: 31 @64168 has 36 MA's), (46, 64282), (54, 64342),

Gene: Fury\_71 Start: 48990, Stop: 48769, Start Num: 30  
Candidate Starts for Fury\_71:  
(1, 49554), (26, 49014), (Start: 30 @48990 has 40 MA's), (43, 48885), (46, 48867), (53, 48822),

Gene: GOATification\_91 Start: 64168, Stop: 64368, Start Num: 31  
Candidate Starts for GOATification\_91:  
(Start: 31 @64168 has 36 MA's), (46, 64282), (54, 64342),

Gene: GRU1\_51 Start: 41731, Stop: 41507, Start Num: 30  
Candidate Starts for GRU1\_51:  
(Start: 30 @41731 has 40 MA's), (50, 41587), (53, 41560),

Gene: GTE5\_51 Start: 42757, Stop: 42533, Start Num: 30  
Candidate Starts for GTE5\_51:  
(26, 42781), (Start: 30 @42757 has 40 MA's), (50, 42613), (53, 42586),

Gene: GTE8\_51 Start: 42940, Stop: 42710, Start Num: 30  
Candidate Starts for GTE8\_51:  
(Start: 30 @42940 has 40 MA's), (38, 42904), (53, 42772),

Gene: Gagieri\_59 Start: 46181, Stop: 45966, Start Num: 30  
Candidate Starts for Gagieri\_59:  
(Start: 30 @46181 has 40 MA's), (37, 46157), (47, 46055), (50, 46040), (53, 46013), (55, 45986),

Gene: Genamy16\_92 Start: 62656, Stop: 62856, Start Num: 31  
Candidate Starts for Genamy16\_92:  
(Start: 31 @62656 has 36 MA's), (33, 62662), (46, 62770), (54, 62830),

Gene: Gibbin\_93 Start: 64345, Stop: 64545, Start Num: 31  
Candidate Starts for Gibbin\_93:  
(Start: 31 @64345 has 36 MA's), (46, 64459), (54, 64519),

Gene: Gretellyn\_91 Start: 64171, Stop: 64371, Start Num: 31  
Candidate Starts for Gretellyn\_91:  
(Start: 31 @64171 has 36 MA's), (46, 64285), (54, 64345),

Gene: GrootJr\_64 Start: 49108, Stop: 48878, Start Num: 30  
Candidate Starts for GrootJr\_64:  
(Start: 30 @49108 has 40 MA's), (38, 49072), (53, 48940),

Gene: Guanica15\_56 Start: 38702, Stop: 38920, Start Num: 29  
Candidate Starts for Guanica15\_56:  
(13, 38540), (16, 38591), (17, 38600), (23, 38660), (Start: 29 @38702 has 5 MA's), (32, 38708), (41, 38768), (53, 38870),

Gene: HomeFry\_67 Start: 47684, Stop: 47466, Start Num: 30

Candidate Starts for HomeFry\_67:

(26, 47708), (Start: 30 @47684 has 40 MA's), (43, 47579), (46, 47561), (53, 47516),

Gene: Jalebi\_91 Start: 65112, Stop: 65312, Start Num: 31

Candidate Starts for Jalebi\_91:

(Start: 31 @65112 has 36 MA's), (46, 65226), (54, 65286),

Gene: Jamemuya19\_87 Start: 62281, Stop: 62481, Start Num: 31

Candidate Starts for Jamemuya19\_87:

(Start: 31 @62281 has 36 MA's), (33, 62287), (41, 62344), (46, 62395), (54, 62455),

Gene: Jifall16\_61 Start: 49380, Stop: 49150, Start Num: 30

Candidate Starts for Jifall16\_61:

(Start: 30 @49380 has 40 MA's), (38, 49344), (53, 49212),

Gene: Kabluna\_65 Start: 48605, Stop: 48384, Start Num: 30

Candidate Starts for Kabluna\_65:

(6, 48881), (Start: 30 @48605 has 40 MA's), (38, 48569), (48, 48473), (50, 48464), (53, 48437),

Gene: KidneyBean\_62 Start: 49504, Stop: 49274, Start Num: 30

Candidate Starts for KidneyBean\_62:

(Start: 30 @49504 has 40 MA's), (38, 49468), (53, 49336),

Gene: Konstantine\_60 Start: 45201, Stop: 45431, Start Num: 28

Candidate Starts for Konstantine\_60:

(Start: 28 @45201 has 7 MA's), (32, 45210), (39, 45249), (44, 45315),

Gene: Kurt\_62 Start: 49741, Stop: 49511, Start Num: 30

Candidate Starts for Kurt\_62:

(Start: 30 @49741 has 40 MA's), (38, 49705), (53, 49573),

Gene: Labelle\_70 Start: 46820, Stop: 47026, Start Num: 30

Candidate Starts for Labelle\_70:

(Start: 30 @46820 has 40 MA's), (41, 46883), (46, 46937),

Gene: Lambo\_91 Start: 64248, Stop: 64448, Start Num: 31

Candidate Starts for Lambo\_91:

(Start: 31 @64248 has 36 MA's), (42, 64347), (43, 64350), (46, 64362), (54, 64422), (56, 64437),

Gene: LastHope\_57 Start: 38346, Stop: 38567, Start Num: 29

Candidate Starts for LastHope\_57:

(Start: 29 @38346 has 5 MA's), (32, 38352), (41, 38412), (53, 38514),

Gene: LavAbarElk\_91 Start: 63290, Stop: 63490, Start Num: 31

Candidate Starts for LavAbarElk\_91:

(Start: 31 @63290 has 36 MA's), (46, 63404), (54, 63464),

Gene: Lila22\_92 Start: 64603, Stop: 64803, Start Num: 31

Candidate Starts for Lila22\_92:

(Start: 31 @64603 has 36 MA's), (42, 64702), (43, 64705), (46, 64717), (54, 64777), (56, 64792),

Gene: Lollipop1437\_66 Start: 50521, Stop: 50294, Start Num: 30

Candidate Starts for Lollipop1437\_66:

(3, 50875), (9, 50767), (Start: 30 @50521 has 40 MA's), (38, 50485), (41, 50455), (49, 50383),

Gene: LuckyLeo\_89 Start: 63837, Stop: 64037, Start Num: 31

Candidate Starts for LuckyLeo\_89:

(10, 63636), (Start: 31 @63837 has 36 MA's), (41, 63900), (42, 63936), (43, 63939), (46, 63951), (54, 64011), (56, 64026),

Gene: MacGully\_69 Start: 49142, Stop: 48924, Start Num: 30

Candidate Starts for MacGully\_69:

(19, 49208), (Start: 30 @49142 has 40 MA's), (37, 49118), (41, 49076), (53, 48974), (55, 48947),

Gene: Maselop\_60 Start: 46021, Stop: 45809, Start Num: 30

Candidate Starts for Maselop\_60:

(Start: 30 @46021 has 40 MA's), (37, 45997), (41, 45955), (47, 45895), (50, 45880), (53, 45853), (55, 45826),

Gene: Megatron06\_58 Start: 44947, Stop: 45177, Start Num: 28

Candidate Starts for Megatron06\_58:

(4, 44635), (5, 44644), (7, 44692), (12, 44776), (14, 44788), (15, 44815), (20, 44890), (25, 44914), (Start: 28 @44947 has 7 MA's), (32, 44956), (39, 44995), (44, 45061),

Gene: MerCougar\_64 Start: 50026, Stop: 49796, Start Num: 30

Candidate Starts for MerCougar\_64:

(Start: 30 @50026 has 40 MA's), (38, 49990), (48, 49894), (50, 49885), (53, 49858),

Gene: Mima20\_90 Start: 63914, Stop: 64114, Start Num: 31

Candidate Starts for Mima20\_90:

(Start: 31 @63914 has 36 MA's), (46, 64028),

Gene: MoiGyank\_94 Start: 64426, Stop: 64626, Start Num: 31

Candidate Starts for MoiGyank\_94:

(Start: 31 @64426 has 36 MA's), (46, 64540),

Gene: NatB6\_62 Start: 48798, Stop: 48568, Start Num: 30

Candidate Starts for NatB6\_62:

(Start: 30 @48798 has 40 MA's), (38, 48762), (53, 48630),

Gene: NorManre\_96 Start: 65444, Stop: 65644, Start Num: 31

Candidate Starts for NorManre\_96:

(Start: 31 @65444 has 36 MA's), (46, 65558), (54, 65618),

Gene: NovaSharks\_91 Start: 62356, Stop: 62556, Start Num: 31

Candidate Starts for NovaSharks\_91:

(Start: 31 @62356 has 36 MA's), (33, 62362), (41, 62419), (46, 62470), (54, 62530),

Gene: NovumRegina\_62 Start: 49107, Stop: 48877, Start Num: 30

Candidate Starts for NovumRegina\_62:

(Start: 30 @49107 has 40 MA's), (38, 49071), (53, 48939),

Gene: Oaker\_56 Start: 44662, Stop: 44892, Start Num: 28

Candidate Starts for Oaker\_56:

(4, 44350), (5, 44359), (7, 44407), (12, 44491), (14, 44503), (15, 44530), (20, 44605), (25, 44629), (Start: 28 @44662 has 7 MA's), (32, 44671), (39, 44710), (44, 44776),

Gene: OtterstedtS21\_92 Start: 64255, Stop: 64455, Start Num: 31

Candidate Starts for OtterstedtS21\_92:

(Start: 31 @64255 has 36 MA's), (46, 64369), (54, 64429),

Gene: Outis\_63 Start: 49539, Stop: 49309, Start Num: 30

Candidate Starts for Outis\_63:

(Start: 30 @49539 has 40 MA's), (38, 49503), (48, 49407), (50, 49398), (53, 49371),

Gene: ParvusTarda\_91 Start: 63529, Stop: 63729, Start Num: 31

Candidate Starts for ParvusTarda\_91:

(10, 63328), (Start: 31 @63529 has 36 MA's), (33, 63535), (46, 63643), (54, 63703), (56, 63718),

Gene: Patio\_64 Start: 49476, Stop: 49249, Start Num: 30

Candidate Starts for Patio\_64:

(Start: 30 @49476 has 40 MA's), (38, 49440), (49, 49338),

Gene: Patos\_96 Start: 65443, Stop: 65643, Start Num: 31

Candidate Starts for Patos\_96:

(Start: 31 @65443 has 36 MA's), (46, 65557), (54, 65617),

Gene: Phomeo\_61 Start: 49376, Stop: 49146, Start Num: 30

Candidate Starts for Phomeo\_61:

(Start: 30 @49376 has 40 MA's), (38, 49340), (53, 49208),

Gene: Pleakley\_71 Start: 48991, Stop: 48770, Start Num: 30

Candidate Starts for Pleakley\_71:

(1, 49555), (26, 49015), (Start: 30 @48991 has 40 MA's), (43, 48886), (46, 48868), (53, 48823),

Gene: Polyzuki\_60 Start: 46010, Stop: 45798, Start Num: 30

Candidate Starts for Polyzuki\_60:

(Start: 30 @46010 has 40 MA's), (37, 45986), (41, 45944), (47, 45884), (50, 45869), (53, 45842), (55, 45815),

Gene: Psycho\_47 Start: 36886, Stop: 37104, Start Num: 34

Candidate Starts for Psycho\_47:

(27, 36856), (Start: 34 @36886 has 3 MA's), (42, 36976), (46, 36994), (53, 37042),

Gene: Puissant\_54 Start: 44067, Stop: 44297, Start Num: 28

Candidate Starts for Puissant\_54:

(11, 43890), (12, 43896), (14, 43908), (15, 43935), (20, 44010), (25, 44034), (Start: 28 @44067 has 7 MA's), (39, 44115), (51, 44211),

Gene: Pywacket\_89 Start: 64257, Stop: 64457, Start Num: 31

Candidate Starts for Pywacket\_89:

(Start: 31 @64257 has 36 MA's), (46, 64371), (54, 64431),

Gene: RazorC\_89 Start: 62289, Stop: 62489, Start Num: 31

Candidate Starts for RazorC\_89:

(Start: 31 @62289 has 36 MA's), (33, 62295), (41, 62352), (46, 62403), (54, 62463),

Gene: RedRaider\_69 Start: 51797, Stop: 51570, Start Num: 30

Candidate Starts for RedRaider\_69:

(21, 51854), (24, 51836), (Start: 30 @51797 has 40 MA's), (49, 51659),

Gene: Riduram\_88 Start: 61996, Stop: 62196, Start Num: 31

Candidate Starts for Riduram\_88:

(Start: 31 @61996 has 36 MA's), (33, 62002), (41, 62059), (46, 62110), (54, 62170),

Gene: Rota\_90 Start: 64356, Stop: 64556, Start Num: 31

Candidate Starts for Rota\_90:

(Start: 31 @64356 has 36 MA's), (46, 64470), (54, 64530),

Gene: Rukungu\_92 Start: 64833, Stop: 65033, Start Num: 31

Candidate Starts for Rukungu\_92:

(Start: 31 @64833 has 36 MA's), (46, 64947), (54, 65007),

Gene: Rumi\_90 Start: 61951, Stop: 62151, Start Num: 31

Candidate Starts for Rumi\_90:

(Start: 31 @61951 has 36 MA's), (33, 61957), (41, 62014), (46, 62065), (54, 62125),

Gene: Sadboi\_91 Start: 64051, Stop: 64251, Start Num: 31

Candidate Starts for Sadboi\_91:

(Start: 31 @64051 has 36 MA's), (46, 64165), (54, 64225),

Gene: Sampudon\_93 Start: 65111, Stop: 65311, Start Num: 31

Candidate Starts for Sampudon\_93:

(Start: 31 @65111 has 36 MA's), (46, 65225), (54, 65285),

Gene: Skysand\_64 Start: 49975, Stop: 49748, Start Num: 30

Candidate Starts for Skysand\_64:

(22, 50023), (24, 50014), (Start: 30 @49975 has 40 MA's), (38, 49939), (49, 49837), (52, 49807),

Gene: StarStruck\_63 Start: 49539, Stop: 49309, Start Num: 30

Candidate Starts for StarStruck\_63:

(Start: 30 @49539 has 40 MA's), (38, 49503), (48, 49407), (50, 49398), (53, 49371),

Gene: Stormer\_92 Start: 62063, Stop: 62263, Start Num: 31

Candidate Starts for Stormer\_92:

(Start: 31 @62063 has 36 MA's), (33, 62069), (46, 62177), (54, 62237),

Gene: SuperSulley\_64 Start: 49827, Stop: 49606, Start Num: 30

Candidate Starts for SuperSulley\_64:

(Start: 30 @49827 has 40 MA's), (38, 49791), (48, 49695), (50, 49686), (53, 49659),

Gene: Thumb\_57 Start: 44402, Stop: 44632, Start Num: 28

Candidate Starts for Thumb\_57:

(4, 44090), (5, 44099), (7, 44147), (12, 44231), (14, 44243), (15, 44270), (20, 44345), (25, 44369),  
(Start: 28 @44402 has 7 MA's), (32, 44411), (39, 44450), (44, 44516),

Gene: Tillicus\_85 Start: 63638, Stop: 63838, Start Num: 31

Candidate Starts for Tillicus\_85:

(10, 63437), (Start: 31 @63638 has 36 MA's), (41, 63701), (43, 63740), (46, 63752), (54, 63812), (56, 63827),

Gene: TingHuaYa\_55 Start: 38208, Stop: 38429, Start Num: 29

Candidate Starts for TingHuaYa\_55:

(Start: 29 @38208 has 5 MA's), (32, 38214), (53, 38376),

Gene: Tracker\_62 Start: 48549, Stop: 48319, Start Num: 30

Candidate Starts for Tracker\_62:

(Start: 30 @48549 has 40 MA's), (38, 48513), (53, 48381),

Gene: Turuncu\_65 Start: 49569, Stop: 49345, Start Num: 30

Candidate Starts for Turuncu\_65:

(2, 50088), (26, 49593), (Start: 30 @49569 has 40 MA's), (50, 49425), (53, 49398),

Gene: Wheezy\_62 Start: 48757, Stop: 48527, Start Num: 30

Candidate Starts for Wheezy\_62:

(Start: 30 @48757 has 40 MA's), (38, 48721), (53, 48589),

Gene: Wojtek\_83 Start: 64184, Stop: 64384, Start Num: 31

Candidate Starts for Wojtek\_83:

(18, 64097), (Start: 31 @64184 has 36 MA's), (40, 64244), (41, 64247), (42, 64283), (43, 64286), (46, 64298), (54, 64358), (56, 64373),

Gene: Yikes\_92 Start: 64716, Stop: 64916, Start Num: 31

Candidate Starts for Yikes\_92:

(Start: 31 @64716 has 36 MA's), (46, 64830), (54, 64890),

Gene: Yunkel11\_56 Start: 38701, Stop: 38919, Start Num: 29

Candidate Starts for Yunkel11\_56:

(13, 38539), (16, 38590), (17, 38599), (23, 38659), (Start: 29 @38701 has 5 MA's), (32, 38707), (41, 38767), (53, 38869),

Gene: Zany\_90 Start: 64855, Stop: 65055, Start Num: 31

Candidate Starts for Zany\_90:

(Start: 31 @64855 has 36 MA's), (46, 64969), (54, 65029),