

Pham 202783



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 202783 Report

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

Pham number 202783 has 126 members, 13 are drafts.

Phages represented in each track:

- Track 1 : Lambert1\_39, Noella\_39, ResDef\_39, Texage\_38, Norbert\_38, Todacoro\_39, Margo\_39, Popcicle\_39, Hookmount\_39, QuinnKiro\_38, Caviar\_39, Pocahontas\_39, Panamaxus\_37, Veracruz\_38
- Track 2 : Kalnok\_44, Phranny\_44, Calvinny\_43, Heliosoles\_42, Marius\_44, Groupthink\_44, PurpleHaze\_43, Manu\_43, Gemma\_42, Kalb97\_44, Reba\_43, JeppNRM\_44, PhishRPhriends\_41, Pawn\_43
- Track 3 : Spike509\_43, TinyPebbles\_42, BuzzBuzz\_41, Rummer\_42, KADY\_43, HashRod\_44, Daishi\_42, Soshari\_45, Misomonster\_44, Methuselah\_41, Louie6\_42, AgronaGT15\_42, Phoxy\_43, LarryKay\_43, Bxz2\_39
- Track 4 : Rockstar\_40, MA5\_40, Bugatti\_40, JF4\_40, Pistachio\_41, JF2\_40, Giroux\_40, SaturnRing\_40, Idleandcovert\_40, BlueBird\_41, MK4\_40, Isca\_39, Phantastic\_40, B1\_37
- Track 5 : Kachowdy\_40, Heathen\_40, DropBear\_40, HelDan\_40, Marchesa\_40
- Track 6 : Grum1\_43, Sabia\_43, PotatoSplit\_45, Lilith\_44, Pembroke\_43, JHC117\_43, Hercules11\_43, MarQuardt\_43, Microwolf\_43, SoYo\_43, Watson\_43, Taurus\_44, LBerry\_44, DaHudson\_43, StepMih\_43, MadMarie\_43, Snickers\_43, P28Green\_44, Phoebe\_44, Fernando\_43, Grub\_43, MuchMore\_46, BreSam8\_43, Dieselweasel\_44, GtownJaz\_43, Beauxregard13\_43, Vix\_43, Marie\_43, Colbster\_43, Grif\_43, Jobu08\_42, Stagni\_43, LugYA\_46, Zetzy\_42, AugsMagnumOpus\_46, MoneyMay\_43, Tiffany\_43, PGHhamlin\_45, Mainiac\_43, Cullens\_43, Penny1\_44, Farber\_43, Malinsilva\_45, EpicPhail\_44, Sabinator\_42, Wooldri\_45, JenCasNa\_44, SoilDragon\_43
- Track 7 : BabyRay\_40
- Track 8 : Ollie\_43, Aglet\_44, GingkoMaracino\_43, Anubis\_46
- Track 9 : Puppy\_41, TNguyen7\_40
- Track 10 : ACFishhook\_42
- Track 11 : BabyJohn\_38, Chiqui\_38
- Track 12 : Fred313\_40
- Track 13 : HaveUMetTed\_44, OlanP\_42
- Track 14 : Scout\_40
- Track 15 : Toro\_41, FlyCatcher\_43

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

The start number called the most often in the published annotations is 11, it was called in 113 of the 113 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- ACFishhook\_42, Aglet\_44, AgronaGT15\_42, Anubis\_46, AugsMagnumOpus\_46, B1\_37, BabyJohn\_38, BabyRay\_40, Beauxregard13\_43, BlueBird\_41, BreSam8\_43, Bugatti\_40, BuzzBuzz\_41, Bxz2\_39, Calvinny\_43, Caviar\_39, Chiqui\_38, Colbster\_43, Cullens\_43, DaHudson\_43, Daishi\_42, Dieselweasel\_44, DropBear\_40, EpicPhail\_44, Farber\_43, Fernando\_43, FlyCatcher\_43, Fred313\_40, Gemma\_42, GingkoMaracino\_43, Giroux\_40, Grif\_43, Groupthink\_44, Grub\_43, Grum1\_43, GtownJaz\_43, HashRod\_44, HaveUMetTed\_44, Heathen\_40, HelDan\_40, Heliosoles\_42, Hercules11\_43, Hookmount\_39, Idleandcovert\_40, Isca\_39, JF2\_40, JF4\_40, JHC117\_43, JenCasNa\_44, JeppNRM\_44, Jobu08\_42, KADY\_43, Kachowdy\_40, Kalb97\_44, Kalnoky\_44, LBerry\_44, Lambert1\_39, LarryKay\_43, Lilith\_44, Louie6\_42, LugYA\_46, MA5\_40, MK4\_40, MadMarie\_43, Mainiac\_43, Malinsilva\_45, Manu\_43, MarQuardt\_43, Marchesa\_40, Margo\_39, Marie\_43, Marius\_44, Methuselah\_41, Microwolf\_43, Misomonster\_44, MoneyMay\_43, MuchMore\_46, Noella\_39, Norbert\_38, OlanP\_42, Ollie\_43, P28Green\_44, PGHhamlin\_45, Panamaxus\_37, Pawn\_43, Pembroke\_43, Penny1\_44, Phantastic\_40, PhishRPhriends\_41, Phoebe\_44, Phoxy\_43, Phranny\_44, Pistachio\_41, Pocahontas\_39, Popcicle\_39, PotatoSplit\_45, Puppy\_41, PurpleHaze\_43, QuinnKiro\_38, Reba\_43, ResDef\_39, Rockstar\_40, Rummer\_42, Sabia\_43, Sabinator\_42, SaturnRing\_40, Scout\_40, Snickers\_43, SoYo\_43, SoilDragon\_43, Soshari\_45, Spike509\_43, Stagni\_43, StepMih\_43, TNguyen7\_40, Taurus\_44, Texage\_38, Tiffany\_43, TinyPebbles\_42, Todacoro\_39, Toro\_41, Veracruz\_38, Vix\_43, Watson\_43, Wooldri\_45, Zetzy\_42,

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

- 

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

- 

### Summary by start number:

Start 11:

- Found in 126 of 126 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 113 of 113
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ACFishhook\_42 (A3), Aglet\_44 (A3), AgronaGT15\_42 (A3), Anubis\_46 (A3), AugsMagnumOpus\_46 (A3), B1\_37 (A3), BabyJohn\_38 (A3), BabyRay\_40 (A3), Beauxregard13\_43 (A3), BlueBird\_41 (A3), BreSam8\_43 (A3), Bugatti\_40 (A3), BuzzBuzz\_41 (A3), Bxz2\_39 (A3), Calvinny\_43 (A3), Caviar\_39 (A3), Chiqui\_38 (A3), Colbster\_43 (A3), Cullens\_43 (A3), DaHudson\_43 (A3), Daishi\_42 (A3), Dieselweasel\_44 (A3), DropBear\_40 (A3), EpicPhail\_44 (A3), Farber\_43 (A3), Fernando\_43 (A3), FlyCatcher\_43 (A7), Fred313\_40 (A3), Gemma\_42 (A3), GingkoMaracino\_43 (A3), Giroux\_40 (A3), Grif\_43 (A3), Groupthink\_44 (A3), Grub\_43 (A3), Grum1\_43 (A3), GtownJaz\_43 (A3), HashRod\_44 (A3), HaveUMetTed\_44 (A3), Heathen\_40 (A3), HelDan\_40 (A3), Heliosoles\_42 (A3), Hercules11\_43 (A3), Hookmount\_39 (A3), Idleandcovert\_40 (A3), Isca\_39 (A3), JF2\_40 (A3), JF4\_40 (A3), JHC117\_43 (A3), JenCasNa\_44 (A3), JeppNRM\_44 (A3), Jobu08\_42 (A3), KADY\_43 (A3), Kachowdy\_40 (A3), Kalb97\_44 (A3), Kalnoky\_44 (A3), LBerry\_44 (A3), Lambert1\_39 (A3), LarryKay\_43 (A3),

Lilith\_44 (A3), Louie6\_42 (A3), LugYA\_46 (A3), MA5\_40 (A3), MK4\_40 (A3), MadMarie\_43 (A3), Mainiac\_43 (A3), Malinsilva\_45 (A3), Manu\_43 (A3), MarQuardt\_43 (A3), Marchesa\_40 (A3), Margo\_39 (A3), Marie\_43 (A3), Marius\_44 (A3), Methuselah\_41 (A3), Microwolf\_43 (A3), Misomonster\_44 (A3), MoneyMay\_43 (A3), MuchMore\_46 (A3), Noella\_39 (A3), Norbert\_38 (A3), OlanP\_42 (A3), Ollie\_43 (A3), P28Green\_44 (A3), PGHhamlin\_45 (A3), Panamaxus\_37 (A3), Pawn\_43 (A3), Pembroke\_43 (A3), Penny1\_44 (A3), Phantastic\_40 (A3), PhishRPhriends\_41 (A3), Phoebe\_44 (A3), Phoxy\_43 (A3), Phranny\_44 (A3), Pistachio\_41 (A3), Pocahontas\_39 (A3), Popcicle\_39 (A3), PotatoSplit\_45 (A3), Puppy\_41 (A3), PurpleHaze\_43 (A3), QuinnKiro\_38 (A3), Reba\_43 (A3), ResDef\_39 (A3), Rockstar\_40 (A3), Rummer\_42 (A3), Sabia\_43 (A3), Sabinator\_42 (A3), SaturnRing\_40 (A3), Scout\_40 (A3), Snickers\_43 (A3), SoYo\_43 (A3), SoilDragon\_43 (A3), Soshari\_45 (A3), Spike509\_43 (A3), Stagni\_43 (A3), StepMih\_43 (A3), TNguyen7\_40 (A3), Taurus\_44 (A3), Texage\_38 (A3), Tiffany\_43 (A3), TinyPebbles\_42 (A3), Todacoro\_39 (A3), Toro\_41 (A7), Veracruz\_38 (A3), Vix\_43 (A3), Watson\_43 (A3), Wooldri\_45 (A3), Zetzy\_42 (A3),

### **Summary by clusters:**

There are 2 clusters represented in this pham: A3, A7,

Info for manual annotations of cluster A3:

•Start number 11 was manually annotated 113 times for cluster A3.

### **Gene Information:**

Gene: ACFishhook\_42 Start: 29061, Stop: 28756, Start Num: 11

Candidate Starts for ACFishhook\_42:

(1, 29307), (2, 29289), (3, 29268), (7, 29157), (8, 29145), (Start: 11 @29061 has 113 MA's), (14, 29007), (15, 28968), (17, 28944), (21, 28857), (22, 28794),

Gene: Aglet\_44 Start: 29103, Stop: 28864, Start Num: 11

Candidate Starts for Aglet\_44:

(Start: 11 @29103 has 113 MA's), (19, 29022), (20, 28995), (21, 28956), (22, 28902),

Gene: AgronaGT15\_42 Start: 28921, Stop: 28682, Start Num: 11

Candidate Starts for AgronaGT15\_42:

(6, 29053), (Start: 11 @28921 has 113 MA's), (20, 28813), (21, 28774), (22, 28720),

Gene: Anubis\_46 Start: 28988, Stop: 28749, Start Num: 11

Candidate Starts for Anubis\_46:

(Start: 11 @28988 has 113 MA's), (19, 28907), (20, 28880), (21, 28841), (22, 28787),

Gene: AugsMagnumOpus\_46 Start: 29094, Stop: 28855, Start Num: 11

Candidate Starts for AugsMagnumOpus\_46:

(Start: 11 @29094 has 113 MA's), (20, 28986), (21, 28947), (22, 28893),

Gene: B1\_37 Start: 27979, Stop: 27740, Start Num: 11

Candidate Starts for B1\_37:

(Start: 11 @27979 has 113 MA's), (20, 27871), (21, 27832), (22, 27778),

Gene: BabyJohn\_38 Start: 28749, Stop: 28510, Start Num: 11  
Candidate Starts for BabyJohn\_38:  
(Start: 11 @28749 has 113 MA's), (18, 28671), (20, 28641), (21, 28602), (22, 28548),

Gene: BabyRay\_40 Start: 28714, Stop: 28439, Start Num: 11  
Candidate Starts for BabyRay\_40:  
(5, 28852), (9, 28771), (Start: 11 @28714 has 113 MA's), (16, 28621), (22, 28477),

Gene: Beauxregard13\_43 Start: 29105, Stop: 28866, Start Num: 11  
Candidate Starts for Beauxregard13\_43:  
(Start: 11 @29105 has 113 MA's), (20, 28997), (21, 28958), (22, 28904),

Gene: BlueBird\_41 Start: 28604, Stop: 28365, Start Num: 11  
Candidate Starts for BlueBird\_41:  
(Start: 11 @28604 has 113 MA's), (20, 28496), (21, 28457), (22, 28403),

Gene: BreSam8\_43 Start: 29095, Stop: 28856, Start Num: 11  
Candidate Starts for BreSam8\_43:  
(Start: 11 @29095 has 113 MA's), (20, 28987), (21, 28948), (22, 28894),

Gene: Bugatti\_40 Start: 28604, Stop: 28365, Start Num: 11  
Candidate Starts for Bugatti\_40:  
(Start: 11 @28604 has 113 MA's), (20, 28496), (21, 28457), (22, 28403),

Gene: BuzzBuzz\_41 Start: 29100, Stop: 28861, Start Num: 11  
Candidate Starts for BuzzBuzz\_41:  
(6, 29232), (Start: 11 @29100 has 113 MA's), (20, 28992), (21, 28953), (22, 28899),

Gene: Bxz2\_39 Start: 29107, Stop: 28868, Start Num: 11  
Candidate Starts for Bxz2\_39:  
(6, 29239), (Start: 11 @29107 has 113 MA's), (20, 28999), (21, 28960), (22, 28906),

Gene: Calvinny\_43 Start: 28989, Stop: 28684, Start Num: 11  
Candidate Starts for Calvinny\_43:  
(1, 29235), (2, 29217), (3, 29196), (4, 29193), (7, 29085), (8, 29073), (Start: 11 @28989 has 113 MA's),  
(14, 28935), (15, 28896), (17, 28872), (21, 28785), (22, 28722),

Gene: Caviar\_39 Start: 28759, Stop: 28520, Start Num: 11  
Candidate Starts for Caviar\_39:  
(Start: 11 @28759 has 113 MA's), (20, 28651), (21, 28612),

Gene: Chiqui\_38 Start: 28758, Stop: 28519, Start Num: 11  
Candidate Starts for Chiqui\_38:  
(Start: 11 @28758 has 113 MA's), (18, 28680), (20, 28650), (21, 28611), (22, 28557),

Gene: Colbster\_43 Start: 29105, Stop: 28866, Start Num: 11  
Candidate Starts for Colbster\_43:  
(Start: 11 @29105 has 113 MA's), (20, 28997), (21, 28958), (22, 28904),

Gene: Cullens\_43 Start: 29101, Stop: 28862, Start Num: 11  
Candidate Starts for Cullens\_43:  
(Start: 11 @29101 has 113 MA's), (20, 28993), (21, 28954), (22, 28900),

Gene: DaHudson\_43 Start: 29094, Stop: 28855, Start Num: 11

Candidate Starts for DaHudson\_43:

(Start: 11 @29094 has 113 MA's), (20, 28986), (21, 28947), (22, 28893),

Gene: Daishi\_42 Start: 27941, Stop: 27702, Start Num: 11

Candidate Starts for Daishi\_42:

(6, 28073), (Start: 11 @27941 has 113 MA's), (20, 27833), (21, 27794), (22, 27740),

Gene: Dieselweasel\_44 Start: 29104, Stop: 28865, Start Num: 11

Candidate Starts for Dieselweasel\_44:

(Start: 11 @29104 has 113 MA's), (20, 28996), (21, 28957), (22, 28903),

Gene: DropBear\_40 Start: 28671, Stop: 28432, Start Num: 11

Candidate Starts for DropBear\_40:

(7, 28767), (Start: 11 @28671 has 113 MA's), (20, 28563), (21, 28524), (22, 28470),

Gene: EpicPhail\_44 Start: 29105, Stop: 28866, Start Num: 11

Candidate Starts for EpicPhail\_44:

(Start: 11 @29105 has 113 MA's), (20, 28997), (21, 28958), (22, 28904),

Gene: Farber\_43 Start: 29095, Stop: 28856, Start Num: 11

Candidate Starts for Farber\_43:

(Start: 11 @29095 has 113 MA's), (20, 28987), (21, 28948), (22, 28894),

Gene: Fernando\_43 Start: 29101, Stop: 28862, Start Num: 11

Candidate Starts for Fernando\_43:

(Start: 11 @29101 has 113 MA's), (20, 28993), (21, 28954), (22, 28900),

Gene: FlyCatcher\_43 Start: 30738, Stop: 30514, Start Num: 11

Candidate Starts for FlyCatcher\_43:

(Start: 11 @30738 has 113 MA's), (13, 30720), (20, 30630), (21, 30591), (23, 30531),

Gene: Fred313\_40 Start: 28356, Stop: 28117, Start Num: 11

Candidate Starts for Fred313\_40:

(7, 28452), (Start: 11 @28356 has 113 MA's), (12, 28341), (20, 28248), (21, 28209), (22, 28155),

Gene: Gemma\_42 Start: 28985, Stop: 28680, Start Num: 11

Candidate Starts for Gemma\_42:

(1, 29231), (2, 29213), (3, 29192), (4, 29189), (7, 29081), (8, 29069), (Start: 11 @28985 has 113 MA's),  
(14, 28931), (15, 28892), (17, 28868), (21, 28781), (22, 28718),

Gene: GingkoMaracino\_43 Start: 28988, Stop: 28749, Start Num: 11

Candidate Starts for GingkoMaracino\_43:

(Start: 11 @28988 has 113 MA's), (19, 28907), (20, 28880), (21, 28841), (22, 28787),

Gene: Giroux\_40 Start: 28603, Stop: 28364, Start Num: 11

Candidate Starts for Giroux\_40:

(Start: 11 @28603 has 113 MA's), (20, 28495), (21, 28456), (22, 28402),

Gene: Grif\_43 Start: 29176, Stop: 28937, Start Num: 11

Candidate Starts for Grif\_43:

(Start: 11 @29176 has 113 MA's), (20, 29068), (21, 29029), (22, 28975),

Gene: Groupthink\_44 Start: 28989, Stop: 28684, Start Num: 11  
Candidate Starts for Groupthink\_44:  
(1, 29235), (2, 29217), (3, 29196), (4, 29193), (7, 29085), (8, 29073), (Start: 11 @28989 has 113 MA's),  
(14, 28935), (15, 28896), (17, 28872), (21, 28785), (22, 28722),

Gene: Grub\_43 Start: 29094, Stop: 28855, Start Num: 11  
Candidate Starts for Grub\_43:  
(Start: 11 @29094 has 113 MA's), (20, 28986), (21, 28947), (22, 28893),

Gene: Grum1\_43 Start: 29101, Stop: 28862, Start Num: 11  
Candidate Starts for Grum1\_43:  
(Start: 11 @29101 has 113 MA's), (20, 28993), (21, 28954), (22, 28900),

Gene: GtownJaz\_43 Start: 29103, Stop: 28864, Start Num: 11  
Candidate Starts for GtownJaz\_43:  
(Start: 11 @29103 has 113 MA's), (20, 28995), (21, 28956), (22, 28902),

Gene: HashRod\_44 Start: 29100, Stop: 28861, Start Num: 11  
Candidate Starts for HashRod\_44:  
(6, 29232), (Start: 11 @29100 has 113 MA's), (20, 28992), (21, 28953), (22, 28899),

Gene: HaveUMetTed\_44 Start: 28983, Stop: 28678, Start Num: 11  
Candidate Starts for HaveUMetTed\_44:  
(7, 29079), (8, 29067), (Start: 11 @28983 has 113 MA's), (14, 28929), (15, 28890), (17, 28866), (21,  
28779), (22, 28716),

Gene: Heathen\_40 Start: 28412, Stop: 28173, Start Num: 11  
Candidate Starts for Heathen\_40:  
(7, 28508), (Start: 11 @28412 has 113 MA's), (20, 28304), (21, 28265), (22, 28211),

Gene: HelDan\_40 Start: 28664, Stop: 28425, Start Num: 11  
Candidate Starts for HelDan\_40:  
(7, 28760), (Start: 11 @28664 has 113 MA's), (20, 28556), (21, 28517), (22, 28463),

Gene: Heliosoles\_42 Start: 28992, Stop: 28687, Start Num: 11  
Candidate Starts for Heliosoles\_42:  
(1, 29238), (2, 29220), (3, 29199), (4, 29196), (7, 29088), (8, 29076), (Start: 11 @28992 has 113 MA's),  
(14, 28938), (15, 28899), (17, 28875), (21, 28788), (22, 28725),

Gene: Hercules11\_43 Start: 29110, Stop: 28871, Start Num: 11  
Candidate Starts for Hercules11\_43:  
(Start: 11 @29110 has 113 MA's), (20, 29002), (21, 28963), (22, 28909),

Gene: Hookmount\_39 Start: 28760, Stop: 28521, Start Num: 11  
Candidate Starts for Hookmount\_39:  
(Start: 11 @28760 has 113 MA's), (20, 28652), (21, 28613),

Gene: Idleandcovert\_40 Start: 28604, Stop: 28365, Start Num: 11  
Candidate Starts for Idleandcovert\_40:  
(Start: 11 @28604 has 113 MA's), (20, 28496), (21, 28457), (22, 28403),

Gene: Isca\_39 Start: 28228, Stop: 27989, Start Num: 11

Candidate Starts for Isca\_39:

(Start: 11 @28228 has 113 MA's), (20, 28120), (21, 28081), (22, 28027),

Gene: JF2\_40 Start: 27979, Stop: 27740, Start Num: 11

Candidate Starts for JF2\_40:

(Start: 11 @27979 has 113 MA's), (20, 27871), (21, 27832), (22, 27778),

Gene: JF4\_40 Start: 27979, Stop: 27740, Start Num: 11

Candidate Starts for JF4\_40:

(Start: 11 @27979 has 113 MA's), (20, 27871), (21, 27832), (22, 27778),

Gene: JHC117\_43 Start: 29100, Stop: 28861, Start Num: 11

Candidate Starts for JHC117\_43:

(Start: 11 @29100 has 113 MA's), (20, 28992), (21, 28953), (22, 28899),

Gene: JenCasNa\_44 Start: 29101, Stop: 28862, Start Num: 11

Candidate Starts for JenCasNa\_44:

(Start: 11 @29101 has 113 MA's), (20, 28993), (21, 28954), (22, 28900),

Gene: JeppNRM\_44 Start: 28990, Stop: 28685, Start Num: 11

Candidate Starts for JeppNRM\_44:

(1, 29236), (2, 29218), (3, 29197), (4, 29194), (7, 29086), (8, 29074), (Start: 11 @28990 has 113 MA's),  
(14, 28936), (15, 28897), (17, 28873), (21, 28786), (22, 28723),

Gene: Jobu08\_42 Start: 28934, Stop: 28692, Start Num: 11

Candidate Starts for Jobu08\_42:

(Start: 11 @28934 has 113 MA's), (20, 28826), (21, 28787), (22, 28730),

Gene: KADY\_43 Start: 29100, Stop: 28861, Start Num: 11

Candidate Starts for KADY\_43:

(6, 29232), (Start: 11 @29100 has 113 MA's), (20, 28992), (21, 28953), (22, 28899),

Gene: Kachowdy\_40 Start: 28664, Stop: 28425, Start Num: 11

Candidate Starts for Kachowdy\_40:

(7, 28760), (Start: 11 @28664 has 113 MA's), (20, 28556), (21, 28517), (22, 28463),

Gene: Kalb97\_44 Start: 28988, Stop: 28683, Start Num: 11

Candidate Starts for Kalb97\_44:

(1, 29234), (2, 29216), (3, 29195), (4, 29192), (7, 29084), (8, 29072), (Start: 11 @28988 has 113 MA's),  
(14, 28934), (15, 28895), (17, 28871), (21, 28784), (22, 28721),

Gene: Kalnoky\_44 Start: 28986, Stop: 28681, Start Num: 11

Candidate Starts for Kalnoky\_44:

(1, 29232), (2, 29214), (3, 29193), (4, 29190), (7, 29082), (8, 29070), (Start: 11 @28986 has 113 MA's),  
(14, 28932), (15, 28893), (17, 28869), (21, 28782), (22, 28719),

Gene: LBerry\_44 Start: 29105, Stop: 28866, Start Num: 11

Candidate Starts for LBerry\_44:

(Start: 11 @29105 has 113 MA's), (20, 28997), (21, 28958), (22, 28904),

Gene: Lambert1\_39 Start: 28759, Stop: 28520, Start Num: 11

Candidate Starts for Lambert1\_39:

(Start: 11 @28759 has 113 MA's), (20, 28651), (21, 28612),



Gene: LarryKay\_43 Start: 29102, Stop: 28863, Start Num: 11

Candidate Starts for LarryKay\_43:

(6, 29234), (Start: 11 @29102 has 113 MA's), (20, 28994), (21, 28955), (22, 28901),

Gene: Lilith\_44 Start: 29095, Stop: 28856, Start Num: 11

Candidate Starts for Lilith\_44:

(Start: 11 @29095 has 113 MA's), (20, 28987), (21, 28948), (22, 28894),

Gene: Louie6\_42 Start: 29101, Stop: 28862, Start Num: 11

Candidate Starts for Louie6\_42:

(6, 29233), (Start: 11 @29101 has 113 MA's), (20, 28993), (21, 28954), (22, 28900),

Gene: LugYA\_46 Start: 29102, Stop: 28863, Start Num: 11

Candidate Starts for LugYA\_46:

(Start: 11 @29102 has 113 MA's), (20, 28994), (21, 28955), (22, 28901),

Gene: MA5\_40 Start: 28108, Stop: 27869, Start Num: 11

Candidate Starts for MA5\_40:

(Start: 11 @28108 has 113 MA's), (20, 28000), (21, 27961), (22, 27907),

Gene: MK4\_40 Start: 28213, Stop: 27974, Start Num: 11

Candidate Starts for MK4\_40:

(Start: 11 @28213 has 113 MA's), (20, 28105), (21, 28066), (22, 28012),

Gene: MadMarie\_43 Start: 29104, Stop: 28865, Start Num: 11

Candidate Starts for MadMarie\_43:

(Start: 11 @29104 has 113 MA's), (20, 28996), (21, 28957), (22, 28903),

Gene: Mainiac\_43 Start: 29095, Stop: 28856, Start Num: 11

Candidate Starts for Mainiac\_43:

(Start: 11 @29095 has 113 MA's), (20, 28987), (21, 28948), (22, 28894),

Gene: Malinsilva\_45 Start: 29094, Stop: 28855, Start Num: 11

Candidate Starts for Malinsilva\_45:

(Start: 11 @29094 has 113 MA's), (20, 28986), (21, 28947), (22, 28893),

Gene: Manu\_43 Start: 28989, Stop: 28684, Start Num: 11

Candidate Starts for Manu\_43:

(1, 29235), (2, 29217), (3, 29196), (4, 29193), (7, 29085), (8, 29073), (Start: 11 @28989 has 113 MA's),  
(14, 28935), (15, 28896), (17, 28872), (21, 28785), (22, 28722),

Gene: MarQuardt\_43 Start: 29103, Stop: 28864, Start Num: 11

Candidate Starts for MarQuardt\_43:

(Start: 11 @29103 has 113 MA's), (20, 28995), (21, 28956), (22, 28902),

Gene: Marchesa\_40 Start: 28662, Stop: 28423, Start Num: 11

Candidate Starts for Marchesa\_40:

(7, 28758), (Start: 11 @28662 has 113 MA's), (20, 28554), (21, 28515), (22, 28461),

Gene: Margo\_39 Start: 28785, Stop: 28546, Start Num: 11

Candidate Starts for Margo\_39:

(Start: 11 @28785 has 113 MA's), (20, 28677), (21, 28638),

Gene: Marie\_43 Start: 29101, Stop: 28862, Start Num: 11  
Candidate Starts for Marie\_43:  
(Start: 11 @29101 has 113 MA's), (20, 28993), (21, 28954), (22, 28900),

Gene: Marius\_44 Start: 28986, Stop: 28681, Start Num: 11  
Candidate Starts for Marius\_44:  
(1, 29232), (2, 29214), (3, 29193), (4, 29190), (7, 29082), (8, 29070), (Start: 11 @28986 has 113 MA's),  
(14, 28932), (15, 28893), (17, 28869), (21, 28782), (22, 28719),

Gene: Methuselah\_41 Start: 29096, Stop: 28857, Start Num: 11  
Candidate Starts for Methuselah\_41:  
(6, 29228), (Start: 11 @29096 has 113 MA's), (20, 28988), (21, 28949), (22, 28895),

Gene: Microwolf\_43 Start: 29103, Stop: 28864, Start Num: 11  
Candidate Starts for Microwolf\_43:  
(Start: 11 @29103 has 113 MA's), (20, 28995), (21, 28956), (22, 28902),

Gene: Misomonster\_44 Start: 29099, Stop: 28860, Start Num: 11  
Candidate Starts for Misomonster\_44:  
(6, 29231), (Start: 11 @29099 has 113 MA's), (20, 28991), (21, 28952), (22, 28898),

Gene: MoneyMay\_43 Start: 29101, Stop: 28862, Start Num: 11  
Candidate Starts for MoneyMay\_43:  
(Start: 11 @29101 has 113 MA's), (20, 28993), (21, 28954), (22, 28900),

Gene: MuchMore\_46 Start: 29094, Stop: 28855, Start Num: 11  
Candidate Starts for MuchMore\_46:  
(Start: 11 @29094 has 113 MA's), (20, 28986), (21, 28947), (22, 28893),

Gene: Noella\_39 Start: 28760, Stop: 28521, Start Num: 11  
Candidate Starts for Noella\_39:  
(Start: 11 @28760 has 113 MA's), (20, 28652), (21, 28613),

Gene: Norbert\_38 Start: 28759, Stop: 28520, Start Num: 11  
Candidate Starts for Norbert\_38:  
(Start: 11 @28759 has 113 MA's), (20, 28651), (21, 28612),

Gene: OlanP\_42 Start: 29171, Stop: 28866, Start Num: 11  
Candidate Starts for OlanP\_42:  
(7, 29267), (8, 29255), (Start: 11 @29171 has 113 MA's), (14, 29117), (15, 29078), (17, 29054), (21,  
28967), (22, 28904),

Gene: Ollie\_43 Start: 28973, Stop: 28734, Start Num: 11  
Candidate Starts for Ollie\_43:  
(Start: 11 @28973 has 113 MA's), (19, 28892), (20, 28865), (21, 28826), (22, 28772),

Gene: P28Green\_44 Start: 29104, Stop: 28865, Start Num: 11  
Candidate Starts for P28Green\_44:  
(Start: 11 @29104 has 113 MA's), (20, 28996), (21, 28957), (22, 28903),

Gene: PGHhamlin\_45 Start: 29094, Stop: 28855, Start Num: 11  
Candidate Starts for PGHhamlin\_45:

(Start: 11 @29094 has 113 MA's), (20, 28986), (21, 28947), (22, 28893),

Gene: Panamaxus\_37 Start: 28759, Stop: 28520, Start Num: 11

Candidate Starts for Panamaxus\_37:

(Start: 11 @28759 has 113 MA's), (20, 28651), (21, 28612),

Gene: Pawn\_43 Start: 28993, Stop: 28688, Start Num: 11

Candidate Starts for Pawn\_43:

(1, 29239), (2, 29221), (3, 29200), (4, 29197), (7, 29089), (8, 29077), (Start: 11 @28993 has 113 MA's), (14, 28939), (15, 28900), (17, 28876), (21, 28789), (22, 28726),

Gene: Pembroke\_43 Start: 29103, Stop: 28864, Start Num: 11

Candidate Starts for Pembroke\_43:

(Start: 11 @29103 has 113 MA's), (20, 28995), (21, 28956), (22, 28902),

Gene: Penny1\_44 Start: 29105, Stop: 28866, Start Num: 11

Candidate Starts for Penny1\_44:

(Start: 11 @29105 has 113 MA's), (20, 28997), (21, 28958), (22, 28904),

Gene: Phantastic\_40 Start: 28244, Stop: 28005, Start Num: 11

Candidate Starts for Phantastic\_40:

(Start: 11 @28244 has 113 MA's), (20, 28136), (21, 28097), (22, 28043),

Gene: PhishRPhriends\_41 Start: 28167, Stop: 27862, Start Num: 11

Candidate Starts for PhishRPhriends\_41:

(1, 28413), (2, 28395), (3, 28374), (4, 28371), (7, 28263), (8, 28251), (Start: 11 @28167 has 113 MA's), (14, 28113), (15, 28074), (17, 28050), (21, 27963), (22, 27900),

Gene: Phoebe\_44 Start: 29094, Stop: 28855, Start Num: 11

Candidate Starts for Phoebe\_44:

(Start: 11 @29094 has 113 MA's), (20, 28986), (21, 28947), (22, 28893),

Gene: Phoxy\_43 Start: 29097, Stop: 28858, Start Num: 11

Candidate Starts for Phoxy\_43:

(6, 29229), (Start: 11 @29097 has 113 MA's), (20, 28989), (21, 28950), (22, 28896),

Gene: Phranny\_44 Start: 28975, Stop: 28670, Start Num: 11

Candidate Starts for Phranny\_44:

(1, 29221), (2, 29203), (3, 29182), (4, 29179), (7, 29071), (8, 29059), (Start: 11 @28975 has 113 MA's), (14, 28921), (15, 28882), (17, 28858), (21, 28771), (22, 28708),

Gene: Pistachio\_41 Start: 28151, Stop: 27912, Start Num: 11

Candidate Starts for Pistachio\_41:

(Start: 11 @28151 has 113 MA's), (20, 28043), (21, 28004), (22, 27950),

Gene: Pocahontas\_39 Start: 28756, Stop: 28517, Start Num: 11

Candidate Starts for Pocahontas\_39:

(Start: 11 @28756 has 113 MA's), (20, 28648), (21, 28609),

Gene: Popcicle\_39 Start: 28756, Stop: 28517, Start Num: 11

Candidate Starts for Popcicle\_39:

(Start: 11 @28756 has 113 MA's), (20, 28648), (21, 28609),

Gene: PotatoSplit\_45 Start: 29105, Stop: 28866, Start Num: 11  
Candidate Starts for PotatoSplit\_45:  
(Start: 11 @29105 has 113 MA's), (20, 28997), (21, 28958), (22, 28904),

Gene: Puppy\_41 Start: 28224, Stop: 27985, Start Num: 11  
Candidate Starts for Puppy\_41:  
(Start: 11 @28224 has 113 MA's), (21, 28077), (22, 28023),

Gene: PurpleHaze\_43 Start: 28988, Stop: 28683, Start Num: 11  
Candidate Starts for PurpleHaze\_43:  
(1, 29234), (2, 29216), (3, 29195), (4, 29192), (7, 29084), (8, 29072), (Start: 11 @28988 has 113 MA's),  
(14, 28934), (15, 28895), (17, 28871), (21, 28784), (22, 28721),

Gene: QuinnKiro\_38 Start: 28759, Stop: 28520, Start Num: 11  
Candidate Starts for QuinnKiro\_38:  
(Start: 11 @28759 has 113 MA's), (20, 28651), (21, 28612),

Gene: Reba\_43 Start: 28648, Stop: 28343, Start Num: 11  
Candidate Starts for Reba\_43:  
(1, 28894), (2, 28876), (3, 28855), (4, 28852), (7, 28744), (8, 28732), (Start: 11 @28648 has 113 MA's),  
(14, 28594), (15, 28555), (17, 28531), (21, 28444), (22, 28381),

Gene: ResDef\_39 Start: 28759, Stop: 28520, Start Num: 11  
Candidate Starts for ResDef\_39:  
(Start: 11 @28759 has 113 MA's), (20, 28651), (21, 28612),

Gene: Rockstar\_40 Start: 28220, Stop: 27981, Start Num: 11  
Candidate Starts for Rockstar\_40:  
(Start: 11 @28220 has 113 MA's), (20, 28112), (21, 28073), (22, 28019),

Gene: Rummer\_42 Start: 29100, Stop: 28861, Start Num: 11  
Candidate Starts for Rummer\_42:  
(6, 29232), (Start: 11 @29100 has 113 MA's), (20, 28992), (21, 28953), (22, 28899),

Gene: Sabia\_43 Start: 29095, Stop: 28856, Start Num: 11  
Candidate Starts for Sabia\_43:  
(Start: 11 @29095 has 113 MA's), (20, 28987), (21, 28948), (22, 28894),

Gene: Sabinator\_42 Start: 29100, Stop: 28861, Start Num: 11  
Candidate Starts for Sabinator\_42:  
(Start: 11 @29100 has 113 MA's), (20, 28992), (21, 28953), (22, 28899),

Gene: SaturnRing\_40 Start: 28604, Stop: 28365, Start Num: 11  
Candidate Starts for SaturnRing\_40:  
(Start: 11 @28604 has 113 MA's), (20, 28496), (21, 28457), (22, 28403),

Gene: Scout\_40 Start: 27911, Stop: 27672, Start Num: 11  
Candidate Starts for Scout\_40:  
(7, 28007), (10, 27926), (Start: 11 @27911 has 113 MA's), (20, 27803), (21, 27764), (22, 27710),

Gene: Snickers\_43 Start: 29075, Stop: 28836, Start Num: 11  
Candidate Starts for Snickers\_43:  
(Start: 11 @29075 has 113 MA's), (20, 28967), (21, 28928), (22, 28874),

Gene: SoYo\_43 Start: 29013, Stop: 28774, Start Num: 11  
Candidate Starts for SoYo\_43:  
(Start: 11 @29013 has 113 MA's), (20, 28905), (21, 28866), (22, 28812),

Gene: SoilDragon\_43 Start: 28550, Stop: 28308, Start Num: 11  
Candidate Starts for SoilDragon\_43:  
(Start: 11 @28550 has 113 MA's), (20, 28442), (21, 28403), (22, 28346),

Gene: Soshari\_45 Start: 29096, Stop: 28857, Start Num: 11  
Candidate Starts for Soshari\_45:  
(6, 29228), (Start: 11 @29096 has 113 MA's), (20, 28988), (21, 28949), (22, 28895),

Gene: Spike509\_43 Start: 29097, Stop: 28858, Start Num: 11  
Candidate Starts for Spike509\_43:  
(6, 29229), (Start: 11 @29097 has 113 MA's), (20, 28989), (21, 28950), (22, 28896),

Gene: Stagni\_43 Start: 29104, Stop: 28865, Start Num: 11  
Candidate Starts for Stagni\_43:  
(Start: 11 @29104 has 113 MA's), (20, 28996), (21, 28957), (22, 28903),

Gene: StepMih\_43 Start: 29095, Stop: 28856, Start Num: 11  
Candidate Starts for StepMih\_43:  
(Start: 11 @29095 has 113 MA's), (20, 28987), (21, 28948), (22, 28894),

Gene: TNguyen7\_40 Start: 28571, Stop: 28332, Start Num: 11  
Candidate Starts for TNguyen7\_40:  
(Start: 11 @28571 has 113 MA's), (21, 28424), (22, 28370),

Gene: Taurus\_44 Start: 29101, Stop: 28862, Start Num: 11  
Candidate Starts for Taurus\_44:  
(Start: 11 @29101 has 113 MA's), (20, 28993), (21, 28954), (22, 28900),

Gene: Texage\_38 Start: 28760, Stop: 28521, Start Num: 11  
Candidate Starts for Texage\_38:  
(Start: 11 @28760 has 113 MA's), (20, 28652), (21, 28613),

Gene: Tiffany\_43 Start: 28987, Stop: 28748, Start Num: 11  
Candidate Starts for Tiffany\_43:  
(Start: 11 @28987 has 113 MA's), (20, 28879), (21, 28840), (22, 28786),

Gene: TinyPebbles\_42 Start: 29102, Stop: 28863, Start Num: 11  
Candidate Starts for TinyPebbles\_42:  
(6, 29234), (Start: 11 @29102 has 113 MA's), (20, 28994), (21, 28955), (22, 28901),

Gene: Todacoro\_39 Start: 28759, Stop: 28520, Start Num: 11  
Candidate Starts for Todacoro\_39:  
(Start: 11 @28759 has 113 MA's), (20, 28651), (21, 28612),

Gene: Toro\_41 Start: 30738, Stop: 30514, Start Num: 11  
Candidate Starts for Toro\_41:  
(Start: 11 @30738 has 113 MA's), (13, 30720), (20, 30630), (21, 30591), (23, 30531),

Gene: Veracruz\_38 Start: 28759, Stop: 28520, Start Num: 11  
Candidate Starts for Veracruz\_38:  
(Start: 11 @28759 has 113 MA's), (20, 28651), (21, 28612),

Gene: Vix\_43 Start: 29184, Stop: 28945, Start Num: 11  
Candidate Starts for Vix\_43:  
(Start: 11 @29184 has 113 MA's), (20, 29076), (21, 29037), (22, 28983),

Gene: Watson\_43 Start: 29094, Stop: 28855, Start Num: 11  
Candidate Starts for Watson\_43:  
(Start: 11 @29094 has 113 MA's), (20, 28986), (21, 28947), (22, 28893),

Gene: Wooldri\_45 Start: 29013, Stop: 28774, Start Num: 11  
Candidate Starts for Wooldri\_45:  
(Start: 11 @29013 has 113 MA's), (20, 28905), (21, 28866), (22, 28812),

Gene: Zetzy\_42 Start: 28665, Stop: 28426, Start Num: 11  
Candidate Starts for Zetzy\_42:  
(Start: 11 @28665 has 113 MA's), (20, 28557), (21, 28518), (22, 28464),