Pham 283832

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 283832 Report

This analysis was run 02/23/26 on database version 636.

Pham number 283832 has 59 members, 8 are drafts.

Phages represented in each track:
• Track 1 : Confidence_64
• Track 2 : BritBrat_65
• Track 3 : Ohgeesy_64
• Track 4 : Hyzer_75
• Track 5 : Attis_61, LordFarquaad_63, SoilAssassin_61
• Track 6 : Vasanti_60
• Track 7 : Dorito_56
• Track 8 : DobbysSock_59, Beenie_59, Samman98_65, Invectra_67, Clark_64
• Track 9 : Dolores_63, Twinkle_64, Howe_65, Sekhmet_62, WinkNick_63, Adora_62, Hortense_65, Shlim410_63
• Track 10 : Tuti_65
• Track 11 : PhriskyACE_62
• Track 12 : Powerball_63
• Track 13 : Mcklovin_63
• Track 14 : Thimann_65
• Track 15 : MichaelScott_66
• Track 16 : Easley_60
• Track 17 : Oregano_65
• Track 18 : BBQValindra_59
• Track 19 : ODay_77
• Track 20 : BearBQ_69
• Track 21 : BotCity_74
• Track 22 : Phabuloso_74
• Track 23 : Horus_71
• Track 24 : ArchiDore_64
• Track 25 : Sprinklemunch_73
• Track 26 : Ruthy_63
• Track 27 : Malibo_67
• Track 28 : Santhid_49
• Track 29 : Cole_47
• Track 30 : MillySue_52, Popper_52, IsHungry_47
• Track 31 : Ryan_51, Donatella_49, Yonex_51, QuinnAvery_52
• Track 32 : Halloweekend_46
• Track 33 : Julie_51
• Track 34 : Zaheer_53
• Track 35 : Guinevere_55, GoodLuckBabe_53
• Track 36 : Gusanita_51

- Track 37 : Kukla_59
- Track 38 : Maja_42
- Track 39 : CocoCinnamon_44
- Track 40 : Ball_40

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

The start number called the most often in the published annotations is 27, it was called in 22 of the 51 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
- Adora_62, Beenie_59, Clark_64, Confidence_64, DobbysSock_59, Dolores_63, Dorito_56, Easley_60, Hortense_65, Howe_65, Invectra_67, Mcklovin_63, MichaelScott_66, Ohgeesy_64, Oregano_65, Powerball_63, Samman98_65, Sekhmet_62, Shlim410_63, Sprinklemunch_73, Thimann_65, Twinkle_64, WinkNick_63,

Genes that have the "Most Annotated" start but do not call it:
- BBQValindra_59, PhriskyACE_62, Tuti_65,

Genes that do not have the "Most Annotated" start:
- ArchiDore_64, Attis_61, Ball_40, BearBQ_69, BotCity_74, BritBrat_65, CocoCinnamon_44, Cole_47, Donatella_49, GoodLuckBabe_53, Guinevere_55, Gusanita_51, Halloweekend_46, Horus_71, Hyzer_75, IsHungry_47, Julie_51, Kukla_59, LordFarquaad_63, Maja_42, Malibo_67, MillySue_52, ODay_77, Phabuloso_74, Popper_52, QuinnAvery_52, Ruthy_63, Ryan_51, Santhid_49, SoilAssassin_61, Vasanti_60, Yonex_51, Zaheer_53,

Summary by start number:

Start 9:
- Found in 1 of 59 (1.7%) of genes in pham
- Manual Annotations of this start: 1 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: ArchiDore_64 (DW),

Start 11:
- Found in 2 of 59 (3.4%) of genes in pham
- No Manual Annotations of this start.
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Hyzer_75 (CZ1),

Start 12:
- Found in 3 of 59 (5.1%) of genes in pham
- Manual Annotations of this start: 3 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Attis_61 (CZ2), LordFarquaad_63 (CZ2), SoilAssassin_61 (CZ2),

Start 21:

- Found in 4 of 59 (6.8%) of genes in pham
- Manual Annotations of this start: 1 of 51
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Kukla_59 (FJ),

Start 22:
- Found in 3 of 59 (5.1%) of genes in pham
- Manual Annotations of this start: 1 of 51
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Ruthy_63 (DW),

Start 25:
- Found in 1 of 59 (1.7%) of genes in pham
- Manual Annotations of this start: 1 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: CocoCinnamon_44 (FO),

Start 26:
- Found in 6 of 59 (10.2%) of genes in pham
- Manual Annotations of this start: 6 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BearBQ_69 (DN), BotCity_74 (DN), BritBrat_65 (CY2), Horus_71 (DN1), ODay_77 (DN), Phabuloso_74 (DN1),

Start 27:
- Found in 26 of 59 (44.1%) of genes in pham
- Manual Annotations of this start: 22 of 51
- Called 88.5% of time when present
- Phage (with cluster) where this start called: Adora_62 (CZ4), Beenie_59 (CZ4), Clark_64 (CZ4), Confidence_64 (CY1), DobbysSock_59 (CZ4), Dolores_63 (CZ4), Dorito_56 (CZ4), Easley_60 (CZ4), Hortense_65 (CZ4), Howe_65 (CZ4), Invectra_67 (CZ4), Mcklovin_63 (CZ4), MichaelScott_66 (CZ4), Ohgeesy_64 (CZ), Oregano_65 (CZ4), Powerball_63 (CZ4), Samman98_65 (CZ4), Sekhmet_62 (CZ4), Shlim410_63 (CZ4), Sprinklemunch_73 (DW), Thimann_65 (CZ4), Twinkle_64 (CZ4), WinkNick_63 (CZ4),

Start 28:
- Found in 3 of 59 (5.1%) of genes in pham
- Manual Annotations of this start: 2 of 51
- Called 66.7% of time when present
- Phage (with cluster) where this start called: BBQValindra_59 (DB), Malibo_67 (DW),

Start 29:
- Found in 1 of 59 (1.7%) of genes in pham
- Manual Annotations of this start: 1 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Santhid_49 (DY),

Start 30:
- Found in 7 of 59 (11.9%) of genes in pham
- Manual Annotations of this start: 1 of 51
- Called 14.3% of time when present
- Phage (with cluster) where this start called: Maja_42 (FO),

Start 32:
• Found in 7 of 59 (11.9%) of genes in pham
• Manual Annotations of this start: 5 of 51
• Called 85.7% of time when present
• Phage (with cluster) where this start called: Cole_47 (FF), Donatella_49 (FF), Halloweekend_46 (FF), QuinnAvery_52 (FF), Ryan_51 (FF), Yonex_51 (FF),

Start 33:
• Found in 1 of 59 (1.7%) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Ball_40 (singleton),

Start 36:
• Found in 8 of 59 (13.6%) of genes in pham
• Manual Annotations of this start: 6 of 51
• Called 100.0% of time when present
• Phage (with cluster) where this start called: GoodLuckBabe_53 (FF), Guinevere_55 (FF), Gusanita_51 (FF), IsHungry_47 (FF), Julie_51 (FF), MillySue_52 (FF), Popper_52 (FF), Zaheer_53 (FF),

Start 37:
• Found in 8 of 59 (13.6%) of genes in pham
• Manual Annotations of this start: 1 of 51
• Called 12.5% of time when present
• Phage (with cluster) where this start called: Vasanti_60 (CZ2),

Start 38:
• Found in 23 of 59 (39.0%) of genes in pham
• No Manual Annotations of this start.
• Called 8.7% of time when present
• Phage (with cluster) where this start called: PhriskyACE_62 (CZ4), Tuti_65 (CZ4),

Summary by clusters:

There are 15 clusters represented in this pham: DN, CY2, CY1, CZ2, CZ1, DB, singleton, CZ4, CZ, DN1, FF, DY, DW, FJ, FO,

Info for manual annotations of cluster CY1:
•Start number 27 was manually annotated 1 time for cluster CY1.

Info for manual annotations of cluster CY2:
•Start number 26 was manually annotated 1 time for cluster CY2.

Info for manual annotations of cluster CZ:
•Start number 27 was manually annotated 1 time for cluster CZ.

Info for manual annotations of cluster CZ2:
•Start number 12 was manually annotated 3 times for cluster CZ2.
•Start number 37 was manually annotated 1 time for cluster CZ2.

Info for manual annotations of cluster CZ4:
•Start number 27 was manually annotated 20 times for cluster CZ4.

Info for manual annotations of cluster DB:
•Start number 28 was manually annotated 1 time for cluster DB.

Info for manual annotations of cluster DN:
•Start number 26 was manually annotated 3 times for cluster DN.

Info for manual annotations of cluster DN1:
•Start number 26 was manually annotated 2 times for cluster DN1.

Info for manual annotations of cluster DW:
•Start number 9 was manually annotated 1 time for cluster DW.
•Start number 22 was manually annotated 1 time for cluster DW.
•Start number 28 was manually annotated 1 time for cluster DW.

Info for manual annotations of cluster DY:
•Start number 29 was manually annotated 1 time for cluster DY.

Info for manual annotations of cluster FF:
•Start number 32 was manually annotated 5 times for cluster FF.
•Start number 36 was manually annotated 6 times for cluster FF.

Info for manual annotations of cluster FJ:
•Start number 21 was manually annotated 1 time for cluster FJ.

Info for manual annotations of cluster FO:
•Start number 25 was manually annotated 1 time for cluster FO.
•Start number 30 was manually annotated 1 time for cluster FO.

Gene Information:
Gene: Adora_62 Start: 43256, Stop: 44095, Start Num: 27
Candidate Starts for Adora_62:
(7, 43076), (13, 43136), (Start: 27 @43256 has 22 MA's), (38, 43334), (49, 43436), (123, 44084),

Gene: ArchiDore_64 Start: 45624, Stop: 46604, Start Num: 9
Candidate Starts for ArchiDore_64:
(1, 45183), (2, 45528), (4, 45543), (8, 45591), (Start: 9 @45624 has 1 MA's), (11, 45633), (Start: 22 @45717 has 1 MA's), (44, 45888), (53, 45972), (56, 45984), (61, 46026), (90, 46296), (112, 46518),

Gene: Attis_61 Start: 41335, Stop: 42336, Start Num: 12
Candidate Starts for Attis_61:
(5, 41272), (Start: 12 @41335 has 3 MA's), (Start: 21 @41413 has 1 MA's), (Start: 37 @41509 has 1 MA's), (54, 41683), (55, 41686), (56, 41689), (61, 41731), (65, 41764), (66, 41770), (71, 41812), (85, 41947), (89, 41998), (90, 42001), (101, 42133), (108, 42211), (115, 42259), (123, 42295), (125, 42325),

Gene: BBQValindra_59 Start: 41751, Stop: 42629, Start Num: 28
Candidate Starts for BBQValindra_59:

(Start: 27 @41748 has 22 MA's), (Start: 28 @41751 has 2 MA's), (Start: 37 @41802 has 1 MA's), (54, 41976), (56, 41982), (61, 42024), (71, 42105), (73, 42114), (78, 42171), (89, 42291), (115, 42552),

Gene: Ball_40 Start: 29611, Stop: 30444, Start Num: 33
Candidate Starts for Ball_40:
(33, 29611), (39, 29665), (49, 29758), (69, 29917), (74, 29944), (75, 29953), (76, 29956), (104, 30280), (114, 30361), (124, 30409),

Gene: BearBQ_69 Start: 43538, Stop: 44368, Start Num: 26
Candidate Starts for BearBQ_69:
(Start: 26 @43538 has 6 MA's), (44, 43664), (47, 43685), (51, 43718), (65, 43826), (66, 43832), (71, 43874), (72, 43877), (73, 43883), (74, 43901), (83, 43982), (84, 43985), (86, 44030), (88, 44051), (89, 44057), (93, 44111), (97, 44168), (98, 44171), (107, 44240), (110, 44267), (112, 44282), (119, 44315), (121, 44327), (123, 44336), (125, 44357),

Gene: Beenie_59 Start: 41304, Stop: 42143, Start Num: 27
Candidate Starts for Beenie_59:
(13, 41181), (Start: 27 @41304 has 22 MA's), (38, 41382), (49, 41484), (123, 42132),

Gene: BotCity_74 Start: 43774, Stop: 44604, Start Num: 26
Candidate Starts for BotCity_74:
(Start: 26 @43774 has 6 MA's), (44, 43900), (47, 43921), (51, 43954), (65, 44062), (66, 44068), (71, 44110), (72, 44113), (73, 44119), (74, 44137), (83, 44218), (84, 44221), (86, 44266), (89, 44293), (93, 44347), (97, 44404), (98, 44407), (106, 44470), (107, 44476), (110, 44503), (112, 44518), (119, 44551), (121, 44563), (123, 44572), (125, 44593),

Gene: BritBrat_65 Start: 43022, Stop: 43852, Start Num: 26
Candidate Starts for BritBrat_65:
(Start: 26 @43022 has 6 MA's), (47, 43169), (66, 43316), (71, 43358), (72, 43361), (73, 43367), (74, 43385), (83, 43466), (84, 43469), (88, 43535), (89, 43541), (93, 43595), (94, 43637), (97, 43652), (98, 43655), (106, 43718), (107, 43724), (109, 43745), (110, 43751), (112, 43766), (119, 43799), (121, 43811), (123, 43820), (125, 43841),

Gene: Clark_64 Start: 41067, Stop: 41906, Start Num: 27
Candidate Starts for Clark_64:
(13, 40944), (Start: 27 @41067 has 22 MA's), (38, 41145), (49, 41247), (123, 41895),

Gene: CocoCinnamon_44 Start: 29916, Stop: 30803, Start Num: 25
Candidate Starts for CocoCinnamon_44:
(16, 29853), (20, 29868), (Start: 25 @29916 has 1 MA's), (48, 30102), (52, 30150), (59, 30204), (63, 30237), (69, 30276), (76, 30315), (79, 30351), (83, 30378), (92, 30480), (95, 30555), (102, 30627), (103, 30630), (111, 30696), (120, 30747),

Gene: Cole_47 Start: 33705, Stop: 34544, Start Num: 32
Candidate Starts for Cole_47:
(Start: 30 @33690 has 1 MA's), (31, 33696), (Start: 32 @33705 has 5 MA's), (42, 33792), (48, 33843), (52, 33891), (59, 33945), (60, 33951), (63, 33978), (69, 34017), (75, 34053), (76, 34056), (79, 34092), (83, 34119), (85, 34140), (92, 34221), (95, 34296), (102, 34368), (103, 34371), (111, 34437),

Gene: Confidence_64 Start: 42274, Stop: 43167, Start Num: 27
Candidate Starts for Confidence_64:
(17, 42202), (18, 42205), (Start: 27 @42274 has 22 MA's), (54, 42505), (55, 42508), (56, 42511), (61, 42553), (71, 42634), (85, 42769), (89, 42820), (101, 42964), (115, 43090), (125, 43156),

Gene: DobbysSock_59 Start: 40715, Stop: 41554, Start Num: 27
Candidate Starts for DobbysSock_59:
(13, 40592), (Start: 27 @40715 has 22 MA's), (38, 40793), (49, 40895), (123, 41543),

Gene: Dolores_63 Start: 40400, Stop: 41236, Start Num: 27
Candidate Starts for Dolores_63:
(7, 40220), (13, 40280), (Start: 27 @40400 has 22 MA's), (38, 40478), (49, 40580), (123, 41225),

Gene: Donatella_49 Start: 34170, Stop: 35009, Start Num: 32
Candidate Starts for Donatella_49:
(Start: 30 @34155 has 1 MA's), (31, 34161), (Start: 32 @34170 has 5 MA's), (48, 34308), (52, 34356), (59, 34410), (60, 34416), (63, 34443), (69, 34482), (75, 34518), (76, 34521), (79, 34557), (83, 34584), (85, 34605), (92, 34686), (95, 34761), (102, 34833), (103, 34836), (111, 34902),

Gene: Dorito_56 Start: 38217, Stop: 39053, Start Num: 27
Candidate Starts for Dorito_56:
(13, 38097), (Start: 27 @38217 has 22 MA's), (38, 38292), (49, 38394), (123, 39042),

Gene: Easley_60 Start: 39896, Stop: 40729, Start Num: 27
Candidate Starts for Easley_60:
(13, 39791), (Start: 27 @39896 has 22 MA's), (38, 39971), (49, 40073), (74, 40277), (123, 40718),

Gene: GoodLuckBabe_53 Start: 34865, Stop: 35668, Start Num: 36
Candidate Starts for GoodLuckBabe_53:
(35, 34862), (Start: 36 @34865 has 6 MA's), (41, 34916), (48, 34985), (57, 35081), (58, 35084), (64, 35132), (69, 35159), (77, 35204), (81, 35255), (82, 35258), (92, 35360), (104, 35519), (111, 35576),

Gene: Guinevere_55 Start: 34842, Stop: 35645, Start Num: 36
Candidate Starts for Guinevere_55:
(35, 34839), (Start: 36 @34842 has 6 MA's), (41, 34893), (48, 34962), (57, 35058), (58, 35061), (64, 35109), (69, 35136), (77, 35181), (81, 35232), (82, 35235), (92, 35337), (104, 35496), (111, 35553),

Gene: Gusanita_51 Start: 34996, Stop: 35799, Start Num: 36
Candidate Starts for Gusanita_51:
(Start: 36 @34996 has 6 MA's), (40, 35044), (41, 35047), (57, 35212), (58, 35215), (69, 35290), (77, 35335), (81, 35386), (82, 35389), (92, 35491), (111, 35707), (116, 35734),

Gene: Halloweekend_46 Start: 33347, Stop: 34186, Start Num: 32
Candidate Starts for Halloweekend_46:
(Start: 30 @33332 has 1 MA's), (31, 33338), (Start: 32 @33347 has 5 MA's), (48, 33485), (52, 33533), (59, 33587), (60, 33593), (63, 33620), (69, 33659), (75, 33695), (76, 33698), (79, 33734), (83, 33761), (85, 33782), (92, 33863), (102, 34010), (103, 34013), (111, 34079),

Gene: Hortense_65 Start: 44611, Stop: 45450, Start Num: 27
Candidate Starts for Hortense_65:
(7, 44431), (13, 44491), (Start: 27 @44611 has 22 MA's), (38, 44689), (49, 44791), (123, 45439),

Gene: Horus_71 Start: 43494, Stop: 44324, Start Num: 26
Candidate Starts for Horus_71:
(Start: 26 @43494 has 6 MA's), (44, 43620), (47, 43641), (51, 43674), (65, 43782), (66, 43788), (71, 43830), (72, 43833), (73, 43839), (74, 43857), (83, 43938), (84, 43941), (86, 43986), (88, 44007), (89, 44013), (97, 44124), (98, 44127), (107, 44196), (109, 44217), (110, 44223), (112, 44238), (119,

44271), (123, 44292), (125, 44313),

Gene: Howe_65 Start: 44611, Stop: 45450, Start Num: 27
Candidate Starts for Howe_65:
(7, 44431), (13, 44491), (Start: 27 @44611 has 22 MA's), (38, 44689), (49, 44791), (123, 45439),

Gene: Hyzer_75 Start: 50006, Stop: 50998, Start Num: 11
Candidate Starts for Hyzer_75:
(3, 49919), (6, 49952), (11, 50006), (Start: 22 @50087 has 1 MA's), (53, 50342), (56, 50354), (61, 50396), (67, 50447), (71, 50477), (74, 50504), (96, 50771), (101, 50795), (108, 50873), (115, 50921), (125, 50987),

Gene: Invectra_67 Start: 42640, Stop: 43479, Start Num: 27
Candidate Starts for Invectra_67:
(13, 42517), (Start: 27 @42640 has 22 MA's), (38, 42718), (49, 42820), (123, 43468),

Gene: IsHungry_47 Start: 33169, Stop: 33972, Start Num: 36
Candidate Starts for IsHungry_47:
(Start: 36 @33169 has 6 MA's), (40, 33217), (41, 33220), (57, 33385), (58, 33388), (64, 33436), (69, 33463), (77, 33508), (81, 33559), (82, 33562), (104, 33823),

Gene: Julie_51 Start: 34956, Stop: 35759, Start Num: 36
Candidate Starts for Julie_51:
(Start: 36 @34956 has 6 MA's), (40, 35004), (41, 35007), (57, 35172), (58, 35175), (64, 35223), (69, 35250), (77, 35295), (81, 35346), (82, 35349), (104, 35610),

Gene: Kukla_59 Start: 36053, Stop: 36976, Start Num: 21
Candidate Starts for Kukla_59:
(Start: 21 @36053 has 1 MA's), (48, 36269), (52, 36314), (61, 36383), (68, 36437), (80, 36554), (83, 36566), (97, 36770), (99, 36788), (100, 36791), (117, 36941), (122, 36959),

Gene: LordFarquaad_63 Start: 41316, Stop: 42317, Start Num: 12
Candidate Starts for LordFarquaad_63:
(5, 41253), (Start: 12 @41316 has 3 MA's), (Start: 21 @41394 has 1 MA's), (Start: 37 @41490 has 1 MA's), (54, 41664), (55, 41667), (56, 41670), (61, 41712), (65, 41745), (66, 41751), (71, 41793), (85, 41928), (89, 41979), (90, 41982), (101, 42114), (108, 42192), (115, 42240), (123, 42276), (125, 42306),

Gene: Maja_42 Start: 30329, Stop: 31183, Start Num: 30
Candidate Starts for Maja_42:
(Start: 30 @30329 has 1 MA's), (31, 30335), (Start: 32 @30344 has 5 MA's), (34, 30362), (45, 30464), (48, 30482), (52, 30530), (59, 30584), (63, 30617), (76, 30695), (79, 30731), (85, 30779), (92, 30860), (103, 31010), (111, 31076),

Gene: Malibo_67 Start: 44890, Stop: 45759, Start Num: 28
Candidate Starts for Malibo_67:
(Start: 28 @44890 has 2 MA's), (Start: 37 @44935 has 1 MA's), (54, 45109), (55, 45112), (56, 45115), (61, 45157), (71, 45238), (85, 45373), (90, 45427), (101, 45556), (108, 45634), (115, 45682), (125, 45748),

Gene: Mcklovin_63 Start: 46941, Stop: 47825, Start Num: 27
Candidate Starts for Mcklovin_63:

(14, 46821), (Start: 27 @46941 has 22 MA's), (Start: 37 @46998 has 1 MA's), (54, 47172), (56, 47178), (61, 47220), (71, 47301), (85, 47436), (87, 47469), (89, 47487), (91, 47505), (101, 47622), (108, 47700),

Gene: MichaelScott_66 Start: 42331, Stop: 43167, Start Num: 27
Candidate Starts for MichaelScott_66:
(13, 42211), (Start: 27 @42331 has 22 MA's), (38, 42406), (49, 42508), (123, 43156),

Gene: MillySue_52 Start: 34794, Stop: 35597, Start Num: 36
Candidate Starts for MillySue_52:
(Start: 36 @34794 has 6 MA's), (40, 34842), (41, 34845), (57, 35010), (58, 35013), (64, 35061), (69, 35088), (77, 35133), (81, 35184), (82, 35187), (104, 35448),

Gene: ODay_77 Start: 44730, Stop: 45560, Start Num: 26
Candidate Starts for ODay_77:
(Start: 26 @44730 has 6 MA's), (44, 44856), (47, 44877), (51, 44910), (65, 45018), (66, 45024), (70, 45060), (71, 45066), (72, 45069), (73, 45075), (74, 45093), (83, 45174), (84, 45177), (86, 45222), (87, 45231), (88, 45243), (89, 45249), (93, 45303), (97, 45360), (98, 45363), (106, 45426), (107, 45432), (110, 45459), (112, 45474), (119, 45507), (123, 45528), (125, 45549),

Gene: Ohgeesy_64 Start: 43662, Stop: 44552, Start Num: 27
Candidate Starts for Ohgeesy_64:
(17, 43590), (18, 43593), (Start: 27 @43662 has 22 MA's), (50, 43854), (54, 43893), (55, 43896), (56, 43899), (61, 43941), (71, 44022), (83, 44133), (85, 44157), (91, 44226), (105, 44391), (108, 44421), (123, 44505), (125, 44541),

Gene: Oregano_65 Start: 41205, Stop: 42041, Start Num: 27
Candidate Starts for Oregano_65:
(13, 41085), (Start: 27 @41205 has 22 MA's), (38, 41280), (49, 41382), (123, 42030),

Gene: Phabuloso_74 Start: 42992, Stop: 43822, Start Num: 26
Candidate Starts for Phabuloso_74:
(Start: 26 @42992 has 6 MA's), (44, 43118), (47, 43139), (51, 43172), (65, 43280), (66, 43286), (71, 43328), (72, 43331), (73, 43337), (74, 43355), (83, 43436), (84, 43439), (86, 43484), (88, 43505), (89, 43511), (93, 43565), (97, 43622), (98, 43625), (106, 43688), (107, 43694), (110, 43721), (112, 43736), (119, 43769), (121, 43781), (123, 43790), (125, 43811),

Gene: PhriskyACE_62 Start: 41297, Stop: 42058, Start Num: 38
Candidate Starts for PhriskyACE_62:
(13, 41102), (Start: 27 @41222 has 22 MA's), (38, 41297), (49, 41399), (113, 42002), (123, 42047),

Gene: Popper_52 Start: 34367, Stop: 35170, Start Num: 36
Candidate Starts for Popper_52:
(Start: 36 @34367 has 6 MA's), (40, 34415), (41, 34418), (57, 34583), (58, 34586), (64, 34634), (69, 34661), (77, 34706), (81, 34757), (82, 34760), (104, 35021),

Gene: Powerball_63 Start: 41331, Stop: 42167, Start Num: 27
Candidate Starts for Powerball_63:
(13, 41208), (Start: 27 @41331 has 22 MA's), (38, 41406), (49, 41508), (113, 42111), (123, 42156),

Gene: QuinnAvery_52 Start: 34788, Stop: 35627, Start Num: 32
Candidate Starts for QuinnAvery_52:

(Start: 30 @34773 has 1 MA's), (31, 34779), (Start: 32 @34788 has 5 MA's), (48, 34926), (52, 34974), (59, 35028), (60, 35034), (63, 35061), (69, 35100), (75, 35136), (76, 35139), (79, 35175), (83, 35202), (85, 35223), (92, 35304), (95, 35379), (102, 35451), (103, 35454), (111, 35520),

Gene: Ruthy_63 Start: 45360, Stop: 46259, Start Num: 22
Candidate Starts for Ruthy_63:
(15, 45288), (Start: 22 @45360 has 1 MA's), (Start: 37 @45447 has 1 MA's), (53, 45615), (56, 45627), (61, 45669), (89, 45936), (112, 46161), (118, 46191),

Gene: Ryan_51 Start: 34472, Stop: 35311, Start Num: 32
Candidate Starts for Ryan_51:
(Start: 30 @34457 has 1 MA's), (31, 34463), (Start: 32 @34472 has 5 MA's), (48, 34610), (52, 34658), (59, 34712), (60, 34718), (63, 34745), (69, 34784), (75, 34820), (76, 34823), (79, 34859), (83, 34886), (85, 34907), (92, 34988), (95, 35063), (102, 35135), (103, 35138), (111, 35204),

Gene: Samman98_65 Start: 41170, Stop: 42009, Start Num: 27
Candidate Starts for Samman98_65:
(13, 41047), (Start: 27 @41170 has 22 MA's), (38, 41248), (49, 41350), (123, 41998),

Gene: Santhid_49 Start: 31927, Stop: 32751, Start Num: 29
Candidate Starts for Santhid_49:
(23, 31891), (Start: 29 @31927 has 1 MA's), (38, 31996), (66, 32245), (113, 32701),

Gene: Sekhmet_62 Start: 40799, Stop: 41635, Start Num: 27
Candidate Starts for Sekhmet_62:
(7, 40619), (13, 40679), (Start: 27 @40799 has 22 MA's), (38, 40877), (49, 40979), (123, 41624),

Gene: Shlim410_63 Start: 44611, Stop: 45450, Start Num: 27
Candidate Starts for Shlim410_63:
(7, 44431), (13, 44491), (Start: 27 @44611 has 22 MA's), (38, 44689), (49, 44791), (123, 45439),

Gene: SoilAssassin_61 Start: 41334, Stop: 42335, Start Num: 12
Candidate Starts for SoilAssassin_61:
(5, 41271), (Start: 12 @41334 has 3 MA's), (Start: 21 @41412 has 1 MA's), (Start: 37 @41508 has 1 MA's), (54, 41682), (55, 41685), (56, 41688), (61, 41730), (65, 41763), (66, 41769), (71, 41811), (85, 41946), (89, 41997), (90, 42000), (101, 42132), (108, 42210), (115, 42258), (123, 42294), (125, 42324),

Gene: Sprinklemunch_73 Start: 47017, Stop: 47847, Start Num: 27
Candidate Starts for Sprinklemunch_73:
(Start: 27 @47017 has 22 MA's), (38, 47089), (39, 47098), (43, 47134), (46, 47167), (47, 47176), (49, 47191), (68, 47353), (123, 47836),

Gene: Thimann_65 Start: 41439, Stop: 42275, Start Num: 27
Candidate Starts for Thimann_65:
(13, 41319), (Start: 27 @41439 has 22 MA's), (38, 41514), (49, 41616), (123, 42264),

Gene: Tuti_65 Start: 42264, Stop: 43025, Start Num: 38
Candidate Starts for Tuti_65:
(13, 42063), (Start: 27 @42186 has 22 MA's), (38, 42264), (49, 42366), (123, 43014),

Gene: Twinkle_64 Start: 45670, Stop: 46509, Start Num: 27
Candidate Starts for Twinkle_64:

(7, 45490), (13, 45550), (Start: 27 @45670 has 22 MA's), (38, 45748), (49, 45850), (123, 46498),

Gene: Vasanti_60 Start: 40525, Stop: 41349, Start Num: 37
Candidate Starts for Vasanti_60:
(10, 40357), (19, 40414), (24, 40453), (Start: 28 @40480 has 2 MA's), (Start: 37 @40525 has 1 MA's), (54, 40699), (55, 40702), (56, 40705), (61, 40747), (66, 40786), (71, 40828), (90, 41017), (101, 41146), (108, 41224), (115, 41272), (125, 41338),

Gene: WinkNick_63 Start: 40323, Stop: 41159, Start Num: 27
Candidate Starts for WinkNick_63:
(7, 40143), (13, 40203), (Start: 27 @40323 has 22 MA's), (38, 40401), (49, 40503), (123, 41148),

Gene: Yonex_51 Start: 34472, Stop: 35311, Start Num: 32
Candidate Starts for Yonex_51:
(Start: 30 @34457 has 1 MA's), (31, 34463), (Start: 32 @34472 has 5 MA's), (48, 34610), (52, 34658), (59, 34712), (60, 34718), (63, 34745), (69, 34784), (75, 34820), (76, 34823), (79, 34859), (83, 34886), (85, 34907), (92, 34988), (95, 35063), (102, 35135), (103, 35138), (111, 35204),

Gene: Zaheer_53 Start: 35680, Stop: 36483, Start Num: 36
Candidate Starts for Zaheer_53:
(35, 35677), (Start: 36 @35680 has 6 MA's), (41, 35731), (48, 35800), (57, 35896), (58, 35899), (62, 35929), (64, 35947), (69, 35974), (77, 36019), (81, 36070), (82, 36073), (92, 36175), (104, 36334), (111, 36391),