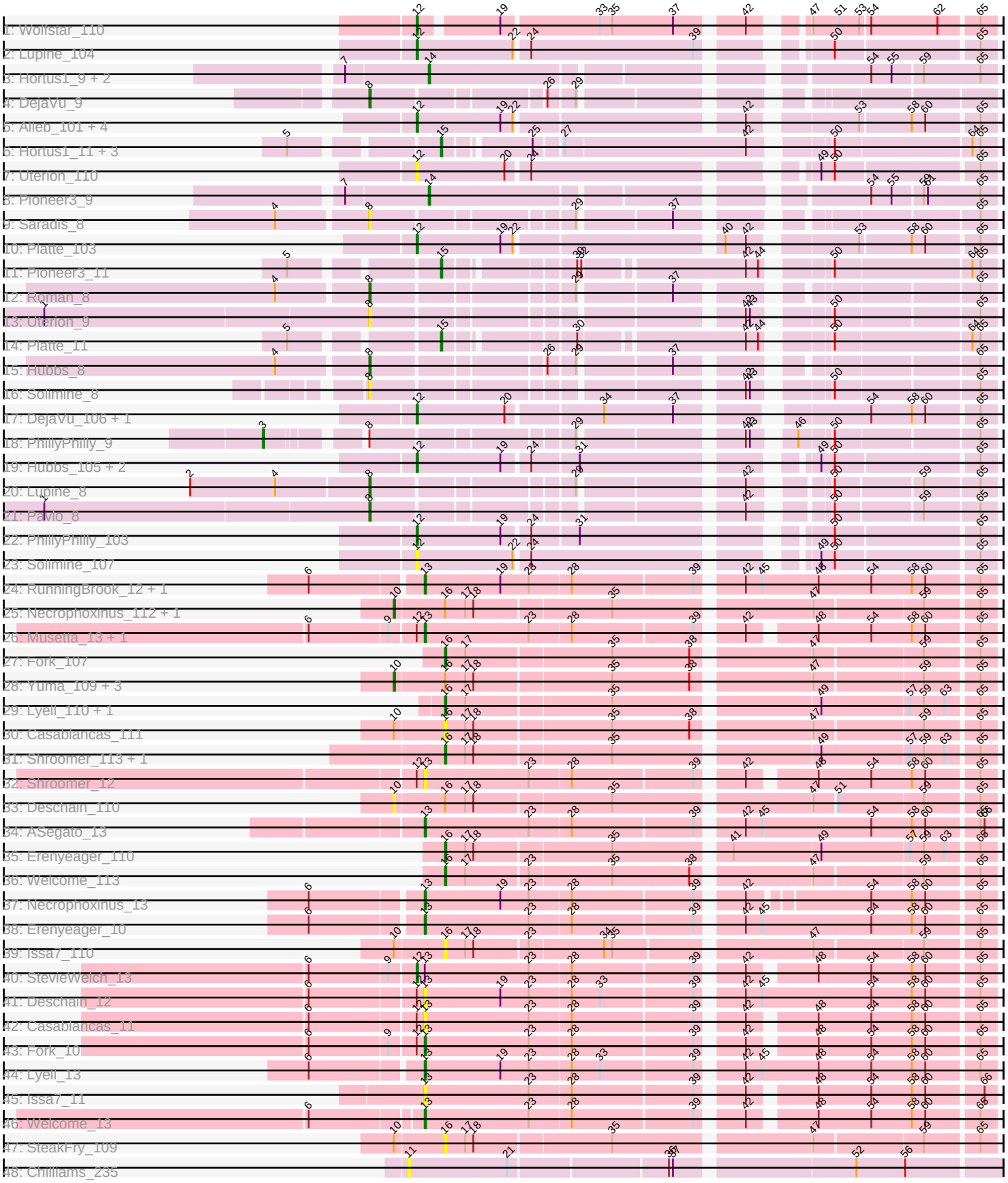
# Pham 283779


1: Wolfstar_110
2: Lupine_104
3: Hortus1_9 + 2
4: DejaVu_9
5: Alleb_101 + 4
6: Hortus1_11 + 3
7: Uterion_110
8: Pioneer3_9
9: Saradis_8
10: Platte_103
11: Pioneer3_11
12: Roman_8
13: Uterion_9
14: Platte_11
15: Hubbs_8
16: Solimine_8
17: DejaVu_106 + 1
18: PhillyPhilly_9
19: Hubbs_105 + 2
20: Lupine_8
21: Pavlo_8
22: PhillyPhilly_103
23: Solimine_107
24: RunningBrook_12 + 1
25: Necrophoxinus_112 + 1
26: Musetta_13 + 1
27: Fork_107
28: Yuma_109 + 3
29: Lyell_110 + 1
30: Casablancas_111
31: Shroomer_113 + 1
32: Shroomer_12
33: Deschain_110
34: ASegato_13
35: Erenyeager_110
36: Welcome_113
37: Necrophoxinus_13
38: Erenyeager_10
39: Issa7_110
40: StevieWelch_13
41: Deschain_12
42: Casablancas_11
43: Fork_10
44: Lyell_13
45: Issa7_11
46: Welcome_13
47: SteakFry_109
48: Chilliams_235

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 283779 Report

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

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 283779 has 68 members, 16 are drafts.

Phages represented in each track:
- Track 1 : Wolfstar_110
- Track 2 : Lupine_104
- Track 3 : Hortus1_9, Alleb_10, OlinDD_9
- Track 4 : DejaVu_9
- Track 5 : Alleb_101, OlinDD_104, Tandem_104, Pioneer3_104, Hortus1_104
- Track 6 : Hortus1_11, OlinDD_11, Tandem_11, Alleb_12
- Track 7 : Uterion_110
- Track 8 : Pioneer3_9
- Track 9 : Saradis_8
- Track 10 : Platte_103
- Track 11 : Pioneer3_11
- Track 12 : Roman_8
- Track 13 : Uterion_9
- Track 14 : Platte_11
- Track 15 : Hubbs_8
- Track 16 : Solimine_8
- Track 17 : DejaVu_106, Saradis_107
- Track 18 : PhillyPhilly_9
- Track 19 : Hubbs_105, Pavlo_106, Roman_107
- Track 20 : Lupine_8
- Track 21 : Pavlo_8
- Track 22 : PhillyPhilly_103
- Track 23 : Solimine_107
- Track 24 : RunningBrook_12, DustyDino_13
- Track 25 : Necrophoxinus_112, HollowPurple_111
- Track 26 : Musetta_13, Yuma_13
- Track 27 : Fork_107
- Track 28 : Yuma_109, ASegato_109, DustyDino_114, RunningBrook_112
- Track 29 : Lyell_110, Musetta_108
- Track 30 : Casablancas_111
- Track 31 : Shroomer_113, StevieWelch_111
- Track 32 : Shroomer_12
- Track 33 : Deschain_110

• Track 34 : ASegato_13
• Track 35 : Erenyeager_110
• Track 36 : Welcome_113
• Track 37 : Necrophoxinus_13
• Track 38 : Erenyeager_10
• Track 39 : Issa7_110
• Track 40 : StevieWelch_13
• Track 41 : Deschain_12
• Track 42 : Casablancas_11
• Track 43 : Fork_10
• Track 44 : Lyell_13
• Track 45 : Issa7_11
• Track 46 : Welcome_13
• Track 47 : SteakFry_109
• Track 48 : Chilliams_235

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

The start number called the most often in the published annotations is 12, it was called in 14 of the 52 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Alleb_101, DejaVu_106, Hortus1_104, Hubbs_105, Lupine_104, OlinDD_104, Pavlo_106, PhillyPhilly_103, Pioneer3_104, Platte_103, Roman_107, Saradis_107, Solimine_107, StevieWelch_13, Tandem_104, Uterion_110, Wolfstar_110,

Genes that have the "Most Annotated" start but do not call it:
• Casablancas_11, Deschain_12, Fork_10, Musetta_13, Shroomer_12, Yuma_13,

Genes that do not have the "Most Annotated" start:
• ASegato_109, ASegato_13, Alleb_10, Alleb_12, Casablancas_111, Chilliams_235, DejaVu_9, Deschain_110, DustyDino_114, DustyDino_13, Erenyeager_10, Erenyeager_110, Fork_107, HollowPurple_111, Hortus1_11, Hortus1_9, Hubbs_8, Issa7_11, Issa7_110, Lupine_8, Lyell_110, Lyell_13, Musetta_108, Necrophoxinus_112, Necrophoxinus_13, OlinDD_11, OlinDD_9, Pavlo_8, PhillyPhilly_9, Pioneer3_11, Pioneer3_9, Platte_11, Roman_8, RunningBrook_112, RunningBrook_12, Saradis_8, Shroomer_113, Solimine_8, SteakFry_109, StevieWelch_111, Tandem_11, Uterion_9, Welcome_113, Welcome_13, Yuma_109,

**Summary by start number:**

Start 3:
• Found in 1 of 68 ( 1.5% ) of genes in pham
• Manual Annotations of this start: 1 of 52
• Called 100.0% of time when present
• Phage (with cluster) where this start called: PhillyPhilly_9 (ED1),

Start 8:
• Found in 9 of 68 ( 13.2% ) of genes in pham
• Manual Annotations of this start: 5 of 52

• Called 88.9% of time when present
• Phage (with cluster) where this start called: DejaVu_9 (ED1), Hubbs_8 (ED1), Lupine_8 (ED1), Pavlo_8 (ED1), Roman_8 (ED1), Saradis_8 (ED1), Solimine_8 (ED1), Uterion_9 (ED1),

Start 10:
• Found in 10 of 68 ( 14.7% ) of genes in pham
• Manual Annotations of this start: 6 of 52
• Called 70.0% of time when present
• Phage (with cluster) where this start called: ASegato_109 (ED2), Deschain_110 (ED2), DustyDino_114 (ED2), HollowPurple_111 (ED2), Necrophoxinus_112 (ED2), RunningBrook_112 (ED2), Yuma_109 (ED2),

Start 11:
• Found in 1 of 68 ( 1.5% ) of genes in pham
• No Manual Annotations of this start.
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Chilliams_235 (FC),

Start 12:
• Found in 23 of 68 ( 33.8% ) of genes in pham
• Manual Annotations of this start: 14 of 52
• Called 73.9% of time when present
• Phage (with cluster) where this start called: Alleb_101 (ED1), DejaVu_106 (ED1), Hortus1_104 (ED1), Hubbs_105 (ED1), Lupine_104 (ED1), OlinDD_104 (ED1), Pavlo_106 (ED1), PhillyPhilly_103 (ED1), Pioneer3_104 (ED1), Platte_103 (ED1), Roman_107 (ED1), Saradis_107 (ED1), Solimine_107 (ED1), StevieWelch_13 (ED2), Tandem_104 (ED1), Uterion_110 (ED1), Wolfstar_110 (ED),

Start 13:
• Found in 15 of 68 ( 22.1% ) of genes in pham
• Manual Annotations of this start: 10 of 52
• Called 93.3% of time when present
• Phage (with cluster) where this start called: ASegato_13 (ED2), Casablancas_11 (ED2), Deschain_12 (ED2), DustyDino_13 (ED2), Erenyeager_10 (ED2), Fork_10 (ED2), Issa7_11 (ED2), Lyell_13 (ED2), Musetta_13 (ED2), Necrophoxinus_13 (ED2), RunningBrook_12 (ED2), Shroomer_12 (ED2), Welcome_13 (ED2), Yuma_13 (ED2),

Start 14:
• Found in 4 of 68 ( 5.9% ) of genes in pham
• Manual Annotations of this start: 4 of 52
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Alleb_10 (ED1), Hortus1_9 (ED1), OlinDD_9 (ED1), Pioneer3_9 (ED1),

Start 15:
• Found in 6 of 68 ( 8.8% ) of genes in pham
• Manual Annotations of this start: 6 of 52
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Alleb_12 (ED1), Hortus1_11 (ED1), OlinDD_11 (ED1), Pioneer3_11 (ED1), Platte_11 (ED1), Tandem_11 (ED1),

Start 16:

• Found in 17 of 68 ( 25.0% ) of genes in pham
• Manual Annotations of this start: 6 of 52
• Called 58.8% of time when present
• Phage (with cluster) where this start called: Casablancas_111 (ED2), Erenyeager_110 (ED2), Fork_107 (ED2), Issa7_110 (ED2), Lyell_110 (ED2), Musetta_108 (ED2), Shroomer_113 (ED2), SteakFry_109 (ED2), StevieWelch_111 (ED2), Welcome_113 (ED2),

**Summary by clusters:**

There are 4 clusters represented in this pham: ED2, ED, ED1, FC,

Info for manual annotations of cluster ED:
•Start number 12 was manually annotated 1 time for cluster ED.

Info for manual annotations of cluster ED1:
•Start number 3 was manually annotated 1 time for cluster ED1.
•Start number 8 was manually annotated 5 times for cluster ED1.
•Start number 12 was manually annotated 12 times for cluster ED1.
•Start number 14 was manually annotated 4 times for cluster ED1.
•Start number 15 was manually annotated 6 times for cluster ED1.

Info for manual annotations of cluster ED2:
•Start number 10 was manually annotated 6 times for cluster ED2.
•Start number 12 was manually annotated 1 time for cluster ED2.
•Start number 13 was manually annotated 10 times for cluster ED2.
•Start number 16 was manually annotated 6 times for cluster ED2.

***Gene Information:***

Gene: ASegato_109 Start: 57290, Stop: 56880, Start Num: 10
Candidate Starts for ASegato_109:
(Start: 10 @57290 has 6 MA's), (Start: 16 @57254 has 6 MA's), (17, 57239), (18, 57233), (35, 57137), (38, 57080), (47, 57002), (59, 56927), (65, 56891),

Gene: ASegato_13 Start: 4659, Stop: 5057, Start Num: 13
Candidate Starts for ASegato_13:
(Start: 13 @4659 has 10 MA's), (23, 4734), (28, 4764), (39, 4851), (42, 4878), (45, 4890), (54, 4971), (58, 5001), (60, 5010), (65, 5046), (66, 5049),

Gene: Alleb_101 Start: 56509, Stop: 56129, Start Num: 12
Candidate Starts for Alleb_101:
(Start: 12 @56509 has 14 MA's), (19, 56449), (22, 56440), (42, 56287), (53, 56221), (58, 56185), (60, 56176), (65, 56140),

Gene: Alleb_10 Start: 3636, Stop: 4010, Start Num: 14
Candidate Starts for Alleb_10:
(7, 3576), (Start: 14 @3636 has 4 MA's), (54, 3921), (55, 3936), (59, 3957), (65, 3999),

Gene: Alleb_12 Start: 4351, Stop: 4713, Start Num: 15

Candidate Starts for Alleb_12:
(5, 4258), (Start: 15 @4351 has 6 MA's), (25, 4405), (27, 4423), (42, 4555), (50, 4600), (64, 4696), (65, 4702),

Gene: Casablancas_111 Start: 56884, Stop: 56510, Start Num: 16
Candidate Starts for Casablancas_111:
(Start: 10 @56920 has 6 MA's), (Start: 16 @56884 has 6 MA's), (17, 56869), (18, 56863), (35, 56767), (38, 56710), (47, 56632), (59, 56557), (65, 56521),

Gene: Casablancas_11 Start: 4232, Stop: 4618, Start Num: 13
Candidate Starts for Casablancas_11:
(6, 4151), (Start: 12 @4226 has 14 MA's), (Start: 13 @4232 has 10 MA's), (23, 4307), (28, 4337), (39, 4424), (42, 4451), (48, 4493), (54, 4532), (58, 4562), (60, 4571), (65, 4607),

Gene: Chilliams_235 Start: 150972, Stop: 151376, Start Num: 11
Candidate Starts for Chilliams_235:
(11, 150972), (21, 151044), (36, 151155), (37, 151158), (52, 151278), (56, 151311),

Gene: DejaVu_9 Start: 3447, Stop: 3833, Start Num: 8
Candidate Starts for DejaVu_9:
(Start: 8 @3447 has 5 MA's), (26, 3561), (29, 3579),

Gene: DejaVu_106 Start: 56615, Stop: 56235, Start Num: 12
Candidate Starts for DejaVu_106:
(Start: 12 @56615 has 14 MA's), (20, 56552), (34, 56486), (37, 56435), (54, 56321), (58, 56291), (60, 56282), (65, 56246),

Gene: Deschain_110 Start: 57472, Stop: 57062, Start Num: 10
Candidate Starts for Deschain_110:
(Start: 10 @57472 has 6 MA's), (Start: 16 @57436 has 6 MA's), (17, 57421), (18, 57415), (35, 57319), (47, 57184), (51, 57169), (59, 57109), (65, 57073),

Gene: Deschain_12 Start: 4576, Stop: 4974, Start Num: 13
Candidate Starts for Deschain_12:
(6, 4495), (Start: 12 @4570 has 14 MA's), (Start: 13 @4576 has 10 MA's), (19, 4630), (23, 4651), (28, 4681), (33, 4702), (39, 4768), (42, 4795), (45, 4807), (54, 4888), (58, 4918), (60, 4927), (65, 4963),

Gene: DustyDino_13 Start: 4681, Stop: 5079, Start Num: 13
Candidate Starts for DustyDino_13:
(6, 4603), (Start: 13 @4681 has 10 MA's), (19, 4735), (23, 4756), (28, 4786), (39, 4873), (42, 4900), (45, 4912), (48, 4954), (54, 4993), (58, 5023), (60, 5032), (65, 5068),

Gene: DustyDino_114 Start: 58143, Stop: 57733, Start Num: 10
Candidate Starts for DustyDino_114:
(Start: 10 @58143 has 6 MA's), (Start: 16 @58107 has 6 MA's), (17, 58092), (18, 58086), (35, 57990), (38, 57933), (47, 57855), (59, 57780), (65, 57744),

Gene: Erenyeager_110 Start: 57108, Stop: 56731, Start Num: 16
Candidate Starts for Erenyeager_110:
(Start: 16 @57108 has 6 MA's), (17, 57093), (18, 57087), (35, 56991), (41, 56913), (49, 56850), (57, 56787), (59, 56778), (63, 56763), (65, 56742),

Gene: Erenyeager_10 Start: 4052, Stop: 4450, Start Num: 13

Candidate Starts for Erenyeager_10:
(6, 3974), (Start: 13 @4052 has 10 MA's), (23, 4127), (28, 4157), (39, 4244), (42, 4271), (45, 4283), (54, 4364), (58, 4394), (60, 4403), (65, 4439),

Gene: Fork_107 Start: 57132, Stop: 56758, Start Num: 16
Candidate Starts for Fork_107:
(Start: 16 @57132 has 6 MA's), (17, 57117), (35, 57015), (38, 56958), (47, 56880), (59, 56805), (65, 56769),

Gene: Fork_10 Start: 3946, Stop: 4332, Start Num: 13
Candidate Starts for Fork_10:
(6, 3865), (9, 3922), (Start: 12 @3940 has 14 MA's), (Start: 13 @3946 has 10 MA's), (23, 4021), (28, 4051), (39, 4138), (42, 4165), (48, 4207), (54, 4246), (58, 4276), (60, 4285), (65, 4321),

Gene: HollowPurple_111 Start: 57719, Stop: 57309, Start Num: 10
Candidate Starts for HollowPurple_111:
(Start: 10 @57719 has 6 MA's), (Start: 16 @57683 has 6 MA's), (17, 57668), (18, 57662), (35, 57566), (47, 57431), (59, 57356), (65, 57320),

Gene: Hortus1_9 Start: 3590, Stop: 3964, Start Num: 14
Candidate Starts for Hortus1_9:
(7, 3530), (Start: 14 @3590 has 4 MA's), (54, 3875), (55, 3890), (59, 3911), (65, 3953),

Gene: Hortus1_11 Start: 4305, Stop: 4667, Start Num: 15
Candidate Starts for Hortus1_11:
(5, 4212), (Start: 15 @4305 has 6 MA's), (25, 4359), (27, 4377), (42, 4509), (50, 4554), (64, 4650), (65, 4656),

Gene: Hortus1_104 Start: 57265, Stop: 56885, Start Num: 12
Candidate Starts for Hortus1_104:
(Start: 12 @57265 has 14 MA's), (19, 57205), (22, 57196), (42, 57043), (53, 56977), (58, 56941), (60, 56932), (65, 56896),

Gene: Hubbs_8 Start: 3631, Stop: 4017, Start Num: 8
Candidate Starts for Hubbs_8:
(4, 3574), (Start: 8 @3631 has 5 MA's), (26, 3745), (29, 3763), (37, 3826), (65, 4006),

Gene: Hubbs_105 Start: 56879, Stop: 56505, Start Num: 12
Candidate Starts for Hubbs_105:
(Start: 12 @56879 has 14 MA's), (19, 56819), (24, 56801), (31, 56768), (49, 56624), (50, 56615), (65, 56516),

Gene: Issa7_110 Start: 57175, Stop: 56804, Start Num: 16
Candidate Starts for Issa7_110:
(Start: 10 @57211 has 6 MA's), (Start: 16 @57175 has 6 MA's), (17, 57160), (18, 57154), (23, 57118), (34, 57064), (35, 57058), (47, 56926), (59, 56851), (65, 56815),

Gene: Issa7_11 Start: 3876, Stop: 4262, Start Num: 13
Candidate Starts for Issa7_11:
(Start: 13 @3876 has 10 MA's), (23, 3951), (28, 3981), (39, 4068), (42, 4095), (48, 4137), (54, 4176), (58, 4206), (60, 4215), (66, 4254),

Gene: Lupine_104 Start: 56423, Stop: 56046, Start Num: 12

Candidate Starts for Lupine_104:
(Start: 12 @56423 has 14 MA's), (22, 56354), (24, 56345), (39, 56225), (50, 56156), (65, 56057),

Gene: Lupine_8 Start: 3428, Stop: 3817, Start Num: 8
Candidate Starts for Lupine_8:
(2, 3308), (4, 3371), (Start: 8 @3428 has 5 MA's), (29, 3560), (42, 3665), (50, 3707), (59, 3767), (65, 3806),

Gene: Lyell_110 Start: 57057, Stop: 56680, Start Num: 16
Candidate Starts for Lyell_110:
(Start: 16 @57057 has 6 MA's), (17, 57042), (35, 56940), (49, 56799), (57, 56736), (59, 56727), (63, 56712), (65, 56691),

Gene: Lyell_13 Start: 4396, Stop: 4794, Start Num: 13
Candidate Starts for Lyell_13:
(6, 4318), (Start: 13 @4396 has 10 MA's), (19, 4450), (23, 4471), (28, 4501), (33, 4522), (39, 4588), (42, 4615), (45, 4627), (48, 4669), (54, 4708), (58, 4738), (60, 4747), (65, 4783),

Gene: Musetta_13 Start: 4656, Stop: 5042, Start Num: 13
Candidate Starts for Musetta_13:
(6, 4575), (9, 4632), (Start: 12 @4650 has 14 MA's), (Start: 13 @4656 has 10 MA's), (23, 4731), (28, 4761), (39, 4848), (42, 4875), (48, 4917), (54, 4956), (58, 4986), (60, 4995), (65, 5031),

Gene: Musetta_108 Start: 57298, Stop: 56921, Start Num: 16
Candidate Starts for Musetta_108:
(Start: 16 @57298 has 6 MA's), (17, 57283), (35, 57181), (49, 57040), (57, 56977), (59, 56968), (63, 56953), (65, 56932),

Gene: Necrophoxinus_112 Start: 57987, Stop: 57577, Start Num: 10
Candidate Starts for Necrophoxinus_112:
(Start: 10 @57987 has 6 MA's), (Start: 16 @57951 has 6 MA's), (17, 57936), (18, 57930), (35, 57834), (47, 57699), (59, 57624), (65, 57588),

Gene: Necrophoxinus_13 Start: 4772, Stop: 5158, Start Num: 13
Candidate Starts for Necrophoxinus_13:
(6, 4694), (Start: 13 @4772 has 10 MA's), (19, 4826), (23, 4847), (28, 4877), (39, 4964), (42, 4991), (54, 5072), (58, 5102), (60, 5111), (65, 5147),

Gene: OlinDD_11 Start: 4304, Stop: 4666, Start Num: 15
Candidate Starts for OlinDD_11:
(5, 4211), (Start: 15 @4304 has 6 MA's), (25, 4358), (27, 4376), (42, 4508), (50, 4553), (64, 4649), (65, 4655),

Gene: OlinDD_104 Start: 57270, Stop: 56890, Start Num: 12
Candidate Starts for OlinDD_104:
(Start: 12 @57270 has 14 MA's), (19, 57210), (22, 57201), (42, 57048), (53, 56982), (58, 56946), (60, 56937), (65, 56901),

Gene: OlinDD_9 Start: 3589, Stop: 3963, Start Num: 14
Candidate Starts for OlinDD_9:
(7, 3529), (Start: 14 @3589 has 4 MA's), (54, 3874), (55, 3889), (59, 3910), (65, 3952),

Gene: Pavlo_106 Start: 57274, Stop: 56900, Start Num: 12

Candidate Starts for Pavlo_106:
(Start: 12 @57274 has 14 MA's), (19, 57214), (24, 57196), (31, 57163), (49, 57019), (50, 57010), (65, 56911),

Gene: Pavlo_8 Start: 3702, Stop: 4091, Start Num: 8
Candidate Starts for Pavlo_8:
(1, 3465), (Start: 8 @3702 has 5 MA's), (42, 3939), (50, 3981), (59, 4041), (65, 4080),

Gene: PhillyPhilly_9 Start: 3491, Stop: 3940, Start Num: 3
Candidate Starts for PhillyPhilly_9:
(Start: 3 @3491 has 1 MA's), (Start: 8 @3548 has 5 MA's), (29, 3680), (42, 3785), (43, 3788), (46, 3809), (50, 3830), (65, 3929),

Gene: PhillyPhilly_103 Start: 56263, Stop: 55889, Start Num: 12
Candidate Starts for PhillyPhilly_103:
(Start: 12 @56263 has 14 MA's), (19, 56203), (24, 56185), (31, 56152), (50, 55999), (65, 55900),

Gene: Pioneer3_9 Start: 3622, Stop: 3996, Start Num: 14
Candidate Starts for Pioneer3_9:
(7, 3562), (Start: 14 @3622 has 4 MA's), (54, 3907), (55, 3922), (59, 3943), (61, 3946), (65, 3985),

Gene: Pioneer3_11 Start: 4337, Stop: 4690, Start Num: 15
Candidate Starts for Pioneer3_11:
(5, 4244), (Start: 15 @4337 has 6 MA's), (30, 4418), (32, 4421), (42, 4532), (44, 4541), (50, 4577), (64, 4673), (65, 4679),

Gene: Pioneer3_104 Start: 57068, Stop: 56688, Start Num: 12
Candidate Starts for Pioneer3_104:
(Start: 12 @57068 has 14 MA's), (19, 57008), (22, 56999), (42, 56846), (53, 56780), (58, 56744), (60, 56735), (65, 56699),

Gene: Platte_103 Start: 56852, Stop: 56472, Start Num: 12
Candidate Starts for Platte_103:
(Start: 12 @56852 has 14 MA's), (19, 56792), (22, 56783), (40, 56645), (42, 56630), (53, 56564), (58, 56528), (60, 56519), (65, 56483),

Gene: Platte_11 Start: 4138, Stop: 4491, Start Num: 15
Candidate Starts for Platte_11:
(5, 4045), (Start: 15 @4138 has 6 MA's), (30, 4219), (42, 4333), (44, 4342), (50, 4378), (64, 4474), (65, 4480),

Gene: Roman_8 Start: 3340, Stop: 3726, Start Num: 8
Candidate Starts for Roman_8:
(4, 3283), (Start: 8 @3340 has 5 MA's), (29, 3472), (37, 3535), (65, 3715),

Gene: Roman_107 Start: 57323, Stop: 56949, Start Num: 12
Candidate Starts for Roman_107:
(Start: 12 @57323 has 14 MA's), (19, 57263), (24, 57245), (31, 57212), (49, 57068), (50, 57059), (65, 56960),

Gene: RunningBrook_12 Start: 4681, Stop: 5079, Start Num: 13
Candidate Starts for RunningBrook_12:

(6, 4603), (Start: 13 @4681 has 10 MA's), (19, 4735), (23, 4756), (28, 4786), (39, 4873), (42, 4900), (45, 4912), (48, 4954), (54, 4993), (58, 5023), (60, 5032), (65, 5068),

Gene: RunningBrook_112 Start: 58143, Stop: 57733, Start Num: 10
Candidate Starts for RunningBrook_112:
(Start: 10 @58143 has 6 MA's), (Start: 16 @58107 has 6 MA's), (17, 58092), (18, 58086), (35, 57990), (38, 57933), (47, 57855), (59, 57780), (65, 57744),

Gene: Saradis_8 Start: 3395, Stop: 3781, Start Num: 8
Candidate Starts for Saradis_8:
(4, 3338), (Start: 8 @3395 has 5 MA's), (29, 3527), (37, 3590), (65, 3770),

Gene: Saradis_107 Start: 56290, Stop: 55910, Start Num: 12
Candidate Starts for Saradis_107:
(Start: 12 @56290 has 14 MA's), (20, 56227), (34, 56161), (37, 56110), (54, 55996), (58, 55966), (60, 55957), (65, 55921),

Gene: Shroomer_113 Start: 57555, Stop: 57178, Start Num: 16
Candidate Starts for Shroomer_113:
(Start: 16 @57555 has 6 MA's), (17, 57540), (18, 57534), (35, 57438), (49, 57297), (57, 57234), (59, 57225), (63, 57210), (65, 57189),

Gene: Shroomer_12 Start: 4005, Stop: 4391, Start Num: 13
Candidate Starts for Shroomer_12:
(Start: 12 @3999 has 14 MA's), (Start: 13 @4005 has 10 MA's), (23, 4080), (28, 4110), (39, 4197), (42, 4224), (48, 4266), (54, 4305), (58, 4335), (60, 4344), (65, 4380),

Gene: Solimine_8 Start: 3460, Stop: 3852, Start Num: 8
Candidate Starts for Solimine_8:
(Start: 8 @3460 has 5 MA's), (42, 3697), (43, 3700), (50, 3742), (65, 3841),

Gene: Solimine_107 Start: 57198, Stop: 56821, Start Num: 12
Candidate Starts for Solimine_107:
(Start: 12 @57198 has 14 MA's), (22, 57129), (24, 57120), (49, 56940), (50, 56931), (65, 56832),

Gene: SteakFry_109 Start: 57683, Stop: 57309, Start Num: 16
Candidate Starts for SteakFry_109:
(Start: 10 @57719 has 6 MA's), (Start: 16 @57683 has 6 MA's), (17, 57668), (18, 57662), (35, 57566), (47, 57431), (59, 57356), (65, 57320),

Gene: StevieWelch_13 Start: 4567, Stop: 4959, Start Num: 12
Candidate Starts for StevieWelch_13:
(6, 4492), (9, 4549), (Start: 12 @4567 has 14 MA's), (Start: 13 @4573 has 10 MA's), (23, 4648), (28, 4678), (39, 4765), (42, 4792), (48, 4834), (54, 4873), (58, 4903), (60, 4912), (65, 4948),

Gene: StevieWelch_111 Start: 57350, Stop: 56973, Start Num: 16
Candidate Starts for StevieWelch_111:
(Start: 16 @57350 has 6 MA's), (17, 57335), (18, 57329), (35, 57233), (49, 57092), (57, 57029), (59, 57020), (63, 57005), (65, 56984),

Gene: Tandem_104 Start: 57148, Stop: 56768, Start Num: 12
Candidate Starts for Tandem_104:

(Start: 12 @57148 has 14 MA's), (19, 57088), (22, 57079), (42, 56926), (53, 56860), (58, 56824), (60, 56815), (65, 56779),

Gene: Tandem_11 Start: 4242, Stop: 4604, Start Num: 15
Candidate Starts for Tandem_11:
(5, 4149), (Start: 15 @4242 has 6 MA's), (25, 4296), (27, 4314), (42, 4446), (50, 4491), (64, 4587), (65, 4593),

Gene: Uterion_110 Start: 56720, Stop: 56343, Start Num: 12
Candidate Starts for Uterion_110:
(Start: 12 @56720 has 14 MA's), (20, 56657), (24, 56642), (49, 56462), (50, 56453), (65, 56354),

Gene: Uterion_9 Start: 3842, Stop: 4234, Start Num: 8
Candidate Starts for Uterion_9:
(1, 3605), (Start: 8 @3842 has 5 MA's), (42, 4079), (43, 4082), (50, 4124), (65, 4223),

Gene: Welcome_113 Start: 57947, Stop: 57573, Start Num: 16
Candidate Starts for Welcome_113:
(Start: 16 @57947 has 6 MA's), (17, 57932), (23, 57890), (35, 57830), (38, 57773), (47, 57695), (59, 57620), (65, 57584),

Gene: Welcome_13 Start: 4652, Stop: 5038, Start Num: 13
Candidate Starts for Welcome_13:
(6, 4574), (Start: 13 @4652 has 10 MA's), (23, 4727), (28, 4757), (39, 4844), (42, 4871), (48, 4913), (54, 4952), (58, 4982), (60, 4991), (65, 5027),

Gene: Wolfstar_110 Start: 58799, Stop: 58431, Start Num: 12
Candidate Starts for Wolfstar_110:
(Start: 12 @58799 has 14 MA's), (19, 58748), (33, 58679), (35, 58670), (37, 58625), (42, 58583), (47, 58556), (51, 58538), (53, 58523), (54, 58517), (62, 58469), (65, 58442),

Gene: Yuma_109 Start: 57104, Stop: 56694, Start Num: 10
Candidate Starts for Yuma_109:
(Start: 10 @57104 has 6 MA's), (Start: 16 @57068 has 6 MA's), (17, 57053), (18, 57047), (35, 56951), (38, 56894), (47, 56816), (59, 56741), (65, 56705),

Gene: Yuma_13 Start: 4555, Stop: 4941, Start Num: 13
Candidate Starts for Yuma_13:
(6, 4474), (9, 4531), (Start: 12 @4549 has 14 MA's), (Start: 13 @4555 has 10 MA's), (23, 4630), (28, 4660), (39, 4747), (42, 4774), (48, 4816), (54, 4855), (58, 4885), (60, 4894), (65, 4930),