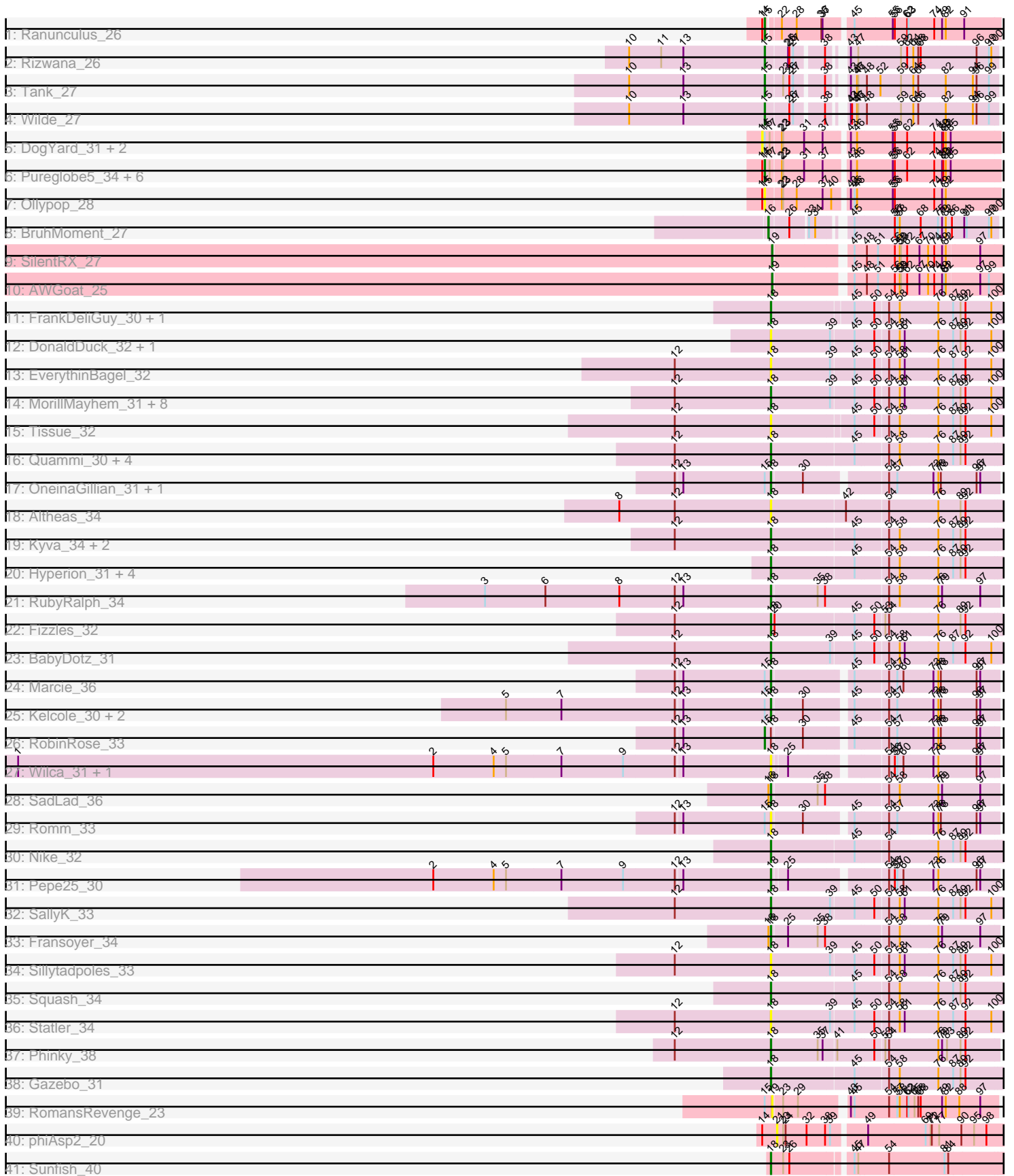


Pham 202904



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 202904 Report

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

Pham number 202904 has 73 members, 22 are drafts.

Phages represented in each track:

- Track 1 : Ranunculus_26
- Track 2 : Rizwana_26
- Track 3 : Tank_27
- Track 4 : Wilde_27
- Track 5 : DogYard_31, NyleyClemson_28, Forrestell_28
- Track 6 : Pureglobe5_34, Beagle_33, Odyssey395_34, RazzB_27, Pointis_32, Kubulix_31, MellowYellow_29
- Track 7 : Ollypop_28
- Track 8 : BruhMoment_27
- Track 9 : SilentRX_27
- Track 10 : AWGoat_25
- Track 11 : FrankDeliGuy_30, Judebell_34
- Track 12 : DonaldDuck_32, Llemily_32
- Track 13 : EverythinBagel_32
- Track 14 : MorillMayhem_31, Lonelysoil_31, Wayne3_33, Casend_33, Wheelie_31, Jehoshaphat_34, Phabia_32, Teehee_33, Zhafia_35
- Track 15 : Tissue_32
- Track 16 : Quammi_30, Rudy_30, Rowlf_28, Viceroy_31, StrawberryJamm_34
- Track 17 : OneinaGillian_31, Fregley_32
- Track 18 : Altheas_34
- Track 19 : Kyva_34, Namago_32, Grassboy_33
- Track 20 : Hyperion_31, Zagie_32, AluminumJesus_30, Blab_30, Mashley_30
- Track 21 : RubyRalph_34
- Track 22 : Fizzles_32
- Track 23 : BabyDotz_31
- Track 24 : Marcie_36
- Track 25 : Kelcole_30, CandC_30, Tempo_31
- Track 26 : RobinRose_33
- Track 27 : Wilca_31, BirdInFrench_31
- Track 28 : SadLad_36
- Track 29 : Romm_33
- Track 30 : Nike_32
- Track 31 : Pepe25_30
- Track 32 : SallyK_33
- Track 33 : Fransoyer_34
- Track 34 : Sillytadpoles_33
- Track 35 : Squash_34

- Track 36 : Statler_34
- Track 37 : Phinky_38
- Track 38 : Gazebo_31
- Track 39 : RomansRevenge_23
- Track 40 : phiAsp2_20
- Track 41 : Sunfish_40

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

The start number called the most often in the published annotations is 18, it was called in 38 of the 51 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Altheas_34, AluminumJesus_30, BabyDotz_31, BirdInFrench_31, Blab_30, CandC_30, Casend_33, DonaldDuck_32, EverythinBagel_32, Fizzles_32, FrankDeliGuy_30, Fransoyer_34, Fregley_32, Gazebo_31, Grassboy_33, Hyperion_31, Jehoshaphat_34, Judebell_34, Kelcole_30, Kyva_34, Llemily_32, Lonelysoil_31, Marcie_36, Mashley_30, MorillMayhem_31, Namago_32, Nike_32, OneinaGillian_31, Pepe25_30, Phabia_32, Phinky_38, Quammi_30, Romm_33, Rowlf_28, RubyRalph_34, Rudy_30, SadLad_36, SallyK_33, Sillytadpoles_33, Squash_34, Statler_34, StrawberryJamm_34, Sunfish_40, Teehee_33, Tempo_31, Tissue_32, Viceroy_31, Wayne3_33, Wheelie_31, Wilca_31, Zagie_32, Zhafia_35,

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

- RobinRose_33,

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

- AWGoat_25, Beagle_33, BruhMoment_27, DogYard_31, Forrestell_28, Kubulix_31, MellowYellow_29, NyleyClemson_28, Odyssey395_34, Ollypop_28, Pointis_32, Pureglobe5_34, Ranunculus_26, RazzB_27, Rizwana_26, RomansRevenge_23, SilentRX_27, Tank_27, Wilde_27, phiAsp2_20,

Summary by start number:

Start 14:

- Found in 13 of 73 (17.8%) of genes in pham
- No Manual Annotations of this start.
- Called 23.1% of time when present
- Phage (with cluster) where this start called: DogYard_31 (AP2), Forrestell_28 (AP2), NyleyClemson_28 (AP2),

Start 15:

- Found in 24 of 73 (32.9%) of genes in pham
- Manual Annotations of this start: 10 of 51
- Called 54.2% of time when present
- Phage (with cluster) where this start called: Beagle_33 (AP2), Kubulix_31 (AP2), MellowYellow_29 (AP2), Odyssey395_34 (AP2), Ollypop_28 (AP2), Pointis_32 (AP2), Pureglobe5_34 (AP2), Ranunculus_26 (AP), RazzB_27 (AP2), Rizwana_26 (AP1), RobinRose_33 (EG), Tank_27 (AP1), Wilde_27 (AP1),

Start 16:

- Found in 3 of 73 (4.1%) 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: BruhMoment_27 (AP3),

Start 18:

- Found in 53 of 73 (72.6%) of genes in pham
- Manual Annotations of this start: 38 of 51
- Called 98.1% of time when present
- Phage (with cluster) where this start called: Altheas_34 (EG), AluminumJesus_30 (EG), BabyDotz_31 (EG), BirdInFrench_31 (EG), Blab_30 (EG), CandC_30 (EG), Casend_33 (EG), DonaldDuck_32 (EG), EverythinBagel_32 (EG), Fizzles_32 (EG), FrankDeliGuy_30 (EG), Fransoyer_34 (EG), Fregley_32 (EG), Gazebo_31 (EG), Grassboy_33 (EG), Hyperion_31 (EG), Jehoshaphat_34 (EG), Judebell_34 (EG), Kelcole_30 (EG), Kyva_34 (EG), Llemily_32 (EG), Lonelysoil_31 (EG), Marcie_36 (EG), Mashley_30 (EG), MorillMayhem_31 (EG), Namago_32 (EG), Nike_32 (EG), OneinaGillian_31 (EG), Pepe25_30 (EG), Phabia_32 (EG), Phinky_38 (EG), Quammi_30 (EG), Romm_33 (EG), Rowlf_28 (EG), RubyRalph_34 (EG), Rudy_30 (EG), SadLad_36 (EG), SallyK_33 (EG), Sillytadpoles_33 (EG), Squash_34 (EG), Statler_34 (EG), StrawberryJamm_34 (EG), Sunfish_40 (singleton), Teehee_33 (EG), Tempo_31 (EG), Tissue_32 (EG), Viceroy_31 (EG), Wayne3_33 (EG), Wheelie_31 (EG), Wilca_31 (EG), Zagie_32 (EG), Zhafia_35 (EG),

Start 19:

- Found in 3 of 73 (4.1%) of genes in pham
- Manual Annotations of this start: 2 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AWGoat_25 (AP4), RomansRevenge_23 (singleton), SilentRX_27 (AP4),

Start 21:

- Found in 1 of 73 (1.4%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: phiAsp2_20 (singleton),

Summary by clusters:

There are 7 clusters represented in this pham: singleton, AP2, AP3, EG, AP1, AP4, AP,

Info for manual annotations of cluster AP:

- Start number 15 was manually annotated 1 time for cluster AP.

Info for manual annotations of cluster AP1:

- Start number 15 was manually annotated 3 times for cluster AP1.

Info for manual annotations of cluster AP2:

- Start number 15 was manually annotated 5 times for cluster AP2.

Info for manual annotations of cluster AP3:

- Start number 16 was manually annotated 1 time for cluster AP3.

Info for manual annotations of cluster AP4:

- Start number 19 was manually annotated 2 times for cluster AP4.

Info for manual annotations of cluster EG:

- Start number 15 was manually annotated 1 time for cluster EG.
- Start number 18 was manually annotated 37 times for cluster EG.

Gene Information:

Gene: AWGoat_25 Start: 20372, Stop: 20869, Start Num: 19

Candidate Starts for AWGoat_25:

(Start: 19 @20372 has 2 MA's), (45, 20534), (48, 20561), (51, 20588), (56, 20621), (58, 20633), (59, 20636), (62, 20651), (67, 20678), (70, 20699), (74, 20714), (79, 20732), (81, 20738), (82, 20741), (97, 20819), (99, 20840),

Gene: Altheas_34 Start: 21898, Stop: 22431, Start Num: 18

Candidate Starts for Altheas_34:

(8, 21532), (12, 21667), (Start: 18 @21898 has 38 MA's), (42, 22072), (54, 22165), (76, 22279), (89, 22333), (92, 22345),

Gene: AluminumJesus_30 Start: 21395, Stop: 21925, Start Num: 18

Candidate Starts for AluminumJesus_30:

(Start: 18 @21395 has 38 MA's), (45, 21587), (54, 21659), (58, 21683), (76, 21773), (87, 21809), (89, 21827), (92, 21839),

Gene: BabyDotz_31 Start: 21663, Stop: 22193, Start Num: 18

Candidate Starts for BabyDotz_31:

(12, 21432), (Start: 18 @21663 has 38 MA's), (39, 21804), (45, 21855), (50, 21900), (54, 21927), (58, 21951), (61, 21963), (76, 22041), (87, 22077), (92, 22107), (100, 22170),

Gene: Beagle_33 Start: 19814, Stop: 20341, Start Num: 15

Candidate Starts for Beagle_33:

(14, 19811), (Start: 15 @19814 has 10 MA's), (17, 19826), (22, 19850), (23, 19853), (31, 19901), (37, 19946), (43, 19991), (46, 20006), (55, 20087), (56, 20090), (62, 20120), (74, 20183), (79, 20201), (80, 20204), (82, 20210), (85, 20222),

Gene: BirdInFrench_31 Start: 20336, Stop: 20827, Start Num: 18

Candidate Starts for BirdInFrench_31:

(1, 18518), (2, 19529), (4, 19676), (5, 19706), (7, 19838), (9, 19988), (12, 20111), (13, 20126), (Start: 18 @20336 has 38 MA's), (25, 20366), (54, 20567), (56, 20579), (57, 20585), (60, 20600), (73, 20669), (76, 20681), (96, 20774), (97, 20783),

Gene: Blab_30 Start: 21320, Stop: 21850, Start Num: 18

Candidate Starts for Blab_30:

(Start: 18 @21320 has 38 MA's), (45, 21512), (54, 21584), (58, 21608), (76, 21698), (87, 21734), (89, 21752), (92, 21764),

Gene: BruhMoment_27 Start: 19390, Stop: 19878, Start Num: 16

Candidate Starts for BruhMoment_27:

(Start: 16 @19390 has 1 MA's), (26, 19435), (33, 19471), (34, 19486), (45, 19540), (56, 19633), (57, 19639), (58, 19645), (68, 19693), (75, 19735), (79, 19744), (82, 19753), (86, 19768), (91, 19798), (93, 19804), (99, 19858), (100, 19864),

Gene: CandC_30 Start: 20030, Stop: 20527, Start Num: 18

Candidate Starts for CandC_30:

(5, 19397), (7, 19529), (12, 19802), (13, 19817), (Start: 15 @20015 has 10 MA's), (Start: 18 @20030 has 38 MA's), (30, 20102), (45, 20195), (54, 20267), (57, 20285), (73, 20369), (76, 20381), (78, 20387), (96, 20474), (97, 20483),

Gene: Casend_33 Start: 22072, Stop: 22602, Start Num: 18

Candidate Starts for Casend_33:

(12, 21841), (Start: 18 @22072 has 38 MA's), (39, 22213), (45, 22264), (50, 22309), (54, 22336), (58, 22360), (61, 22372), (76, 22450), (87, 22486), (89, 22504), (92, 22516), (100, 22579),

Gene: DogYard_31 Start: 19699, Stop: 20229, Start Num: 14

Candidate Starts for DogYard_31:

(14, 19699), (Start: 15 @19702 has 10 MA's), (17, 19714), (22, 19738), (23, 19741), (31, 19789), (37, 19834), (43, 19879), (46, 19894), (55, 19975), (56, 19978), (62, 20008), (74, 20071), (79, 20089), (80, 20092), (82, 20098), (85, 20110),

Gene: DonaldDuck_32 Start: 21418, Stop: 21948, Start Num: 18

Candidate Starts for DonaldDuck_32:

(Start: 18 @21418 has 38 MA's), (39, 21559), (45, 21610), (50, 21655), (54, 21682), (58, 21706), (61, 21718), (76, 21796), (87, 21832), (89, 21850), (92, 21862), (100, 21925),

Gene: EverythinBagel_32 Start: 21806, Stop: 22336, Start Num: 18

Candidate Starts for EverythinBagel_32:

(12, 21575), (Start: 18 @21806 has 38 MA's), (39, 21947), (45, 21998), (50, 22043), (54, 22070), (58, 22094), (61, 22106), (76, 22184), (87, 22220), (92, 22250), (100, 22313),

Gene: Fizzles_32 Start: 21131, Stop: 21658, Start Num: 18

Candidate Starts for Fizzles_32:

(12, 20903), (Start: 18 @21131 has 38 MA's), (20, 21140), (45, 21320), (50, 21365), (53, 21386), (54, 21392), (76, 21506), (89, 21560), (92, 21572),

Gene: Forrestell_28 Start: 18510, Stop: 19040, Start Num: 14

Candidate Starts for Forrestell_28:

(14, 18510), (Start: 15 @18513 has 10 MA's), (17, 18525), (22, 18549), (23, 18552), (31, 18600), (37, 18645), (43, 18690), (46, 18705), (55, 18786), (56, 18789), (62, 18819), (74, 18882), (79, 18900), (80, 18903), (82, 18909), (85, 18921),

Gene: FrankDeliGuy_30 Start: 21381, Stop: 21908, Start Num: 18

Candidate Starts for FrankDeliGuy_30:

(Start: 18 @21381 has 38 MA's), (45, 21570), (50, 21615), (54, 21642), (58, 21666), (76, 21756), (87, 21792), (89, 21810), (92, 21822), (100, 21885),

Gene: Fransoyer_34 Start: 21245, Stop: 21772, Start Num: 18

Candidate Starts for Fransoyer_34:

(Start: 16 @21239 has 1 MA's), (Start: 18 @21245 has 38 MA's), (25, 21281), (35, 21353), (38, 21371), (54, 21512), (58, 21536), (76, 21626), (79, 21635), (97, 21728),

Gene: Fregley_32 Start: 20600, Stop: 21097, Start Num: 18

Candidate Starts for Fregley_32:

(12, 20372), (13, 20387), (Start: 15 @20585 has 10 MA's), (Start: 18 @20600 has 38 MA's), (30, 20672), (54, 20837), (57, 20855), (73, 20939), (76, 20951), (78, 20957), (96, 21044), (97, 21053),

Gene: Gazebo_31 Start: 21858, Stop: 22388, Start Num: 18

Candidate Starts for Gazebo_31:

(Start: 18 @21858 has 38 MA's), (45, 22050), (54, 22122), (58, 22146), (76, 22236), (87, 22272), (89, 22290), (92, 22302),

Gene: Grassboy_33 Start: 22032, Stop: 22562, Start Num: 18

Candidate Starts for Grassboy_33:

(12, 21801), (Start: 18 @22032 has 38 MA's), (45, 22224), (54, 22296), (58, 22320), (76, 22410), (87, 22446), (89, 22464), (92, 22476),

Gene: Hyperion_31 Start: 21815, Stop: 22345, Start Num: 18

Candidate Starts for Hyperion_31:

(Start: 18 @21815 has 38 MA's), (45, 22007), (54, 22079), (58, 22103), (76, 22193), (87, 22229), (89, 22247), (92, 22259),

Gene: Jehoshaphat_34 Start: 22337, Stop: 22867, Start Num: 18

Candidate Starts for Jehoshaphat_34:

(12, 22106), (Start: 18 @22337 has 38 MA's), (39, 22478), (45, 22529), (50, 22574), (54, 22601), (58, 22625), (61, 22637), (76, 22715), (87, 22751), (89, 22769), (92, 22781), (100, 22844),

Gene: Judebell_34 Start: 21846, Stop: 22373, Start Num: 18

Candidate Starts for Judebell_34:

(Start: 18 @21846 has 38 MA's), (45, 22035), (50, 22080), (54, 22107), (58, 22131), (76, 22221), (87, 22257), (89, 22275), (92, 22287), (100, 22350),

Gene: Kelcole_30 Start: 20482, Stop: 20979, Start Num: 18

Candidate Starts for Kelcole_30:

(5, 19849), (7, 19981), (12, 20254), (13, 20269), (Start: 15 @20467 has 10 MA's), (Start: 18 @20482 has 38 MA's), (30, 20554), (45, 20647), (54, 20719), (57, 20737), (73, 20821), (76, 20833), (78, 20839), (96, 20926), (97, 20935),

Gene: Kubulix_31 Start: 19998, Stop: 20525, Start Num: 15

Candidate Starts for Kubulix_31:

(14, 19995), (Start: 15 @19998 has 10 MA's), (17, 20010), (22, 20034), (23, 20037), (31, 20085), (37, 20130), (43, 20175), (46, 20190), (55, 20271), (56, 20274), (62, 20304), (74, 20367), (79, 20385), (80, 20388), (82, 20394), (85, 20406),

Gene: Kyva_34 Start: 22067, Stop: 22597, Start Num: 18

Candidate Starts for Kyva_34:

(12, 21836), (Start: 18 @22067 has 38 MA's), (45, 22259), (54, 22331), (58, 22355), (76, 22445), (87, 22481), (89, 22499), (92, 22511),

Gene: Llemily_32 Start: 21113, Stop: 21643, Start Num: 18

Candidate Starts for Llemily_32:

(Start: 18 @21113 has 38 MA's), (39, 21254), (45, 21305), (50, 21350), (54, 21377), (58, 21401), (61, 21413), (76, 21491), (87, 21527), (89, 21545), (92, 21557), (100, 21620),

Gene: Lonelysoil_31 Start: 21358, Stop: 21888, Start Num: 18

Candidate Starts for Lonelysoil_31:

(12, 21127), (Start: 18 @21358 has 38 MA's), (39, 21499), (45, 21550), (50, 21595), (54, 21622), (58, 21646), (61, 21658), (76, 21736), (87, 21772), (89, 21790), (92, 21802), (100, 21865),

Gene: Marcie_36 Start: 21138, Stop: 21635, Start Num: 18

Candidate Starts for Marcie_36:

(12, 20910), (13, 20925), (Start: 15 @21123 has 10 MA's), (Start: 18 @21138 has 38 MA's), (45, 21303), (54, 21375), (57, 21393), (60, 21408), (73, 21477), (76, 21489), (78, 21495), (96, 21582), (97, 21591),

Gene: Mashley_30 Start: 21630, Stop: 22160, Start Num: 18

Candidate Starts for Mashley_30:

(Start: 18 @21630 has 38 MA's), (45, 21822), (54, 21894), (58, 21918), (76, 22008), (87, 22044), (89, 22062), (92, 22074),

Gene: MellowYellow_29 Start: 18549, Stop: 19076, Start Num: 15

Candidate Starts for MellowYellow_29:

(14, 18546), (Start: 15 @18549 has 10 MA's), (17, 18561), (22, 18585), (23, 18588), (31, 18636), (37, 18681), (43, 18726), (46, 18741), (55, 18822), (56, 18825), (62, 18855), (74, 18918), (79, 18936), (80, 18939), (82, 18945), (85, 18957),

Gene: MorillMayhem_31 Start: 21628, Stop: 22158, Start Num: 18

Candidate Starts for MorillMayhem_31:

(12, 21397), (Start: 18 @21628 has 38 MA's), (39, 21769), (45, 21820), (50, 21865), (54, 21892), (58, 21916), (61, 21928), (76, 22006), (87, 22042), (89, 22060), (92, 22072), (100, 22135),

Gene: Namago_32 Start: 21197, Stop: 21727, Start Num: 18

Candidate Starts for Namago_32:

(12, 20966), (Start: 18 @21197 has 38 MA's), (45, 21389), (54, 21461), (58, 21485), (76, 21575), (87, 21611), (89, 21629), (92, 21641),

Gene: Nike_32 Start: 22149, Stop: 22679, Start Num: 18

Candidate Starts for Nike_32:

(Start: 18 @22149 has 38 MA's), (45, 22341), (54, 22413), (76, 22527), (87, 22563), (89, 22581), (92, 22593),

Gene: NyleyClemson_28 Start: 18491, Stop: 19021, Start Num: 14

Candidate Starts for NyleyClemson_28:

(14, 18491), (Start: 15 @18494 has 10 MA's), (17, 18506), (22, 18530), (23, 18533), (31, 18581), (37, 18626), (43, 18671), (46, 18686), (55, 18767), (56, 18770), (62, 18800), (74, 18863), (79, 18881), (80, 18884), (82, 18890), (85, 18902),

Gene: Odyssey395_34 Start: 19827, Stop: 20354, Start Num: 15

Candidate Starts for Odyssey395_34:

(14, 19824), (Start: 15 @19827 has 10 MA's), (17, 19839), (22, 19863), (23, 19866), (31, 19914), (37, 19959), (43, 20004), (46, 20019), (55, 20100), (56, 20103), (62, 20133), (74, 20196), (79, 20214), (80, 20217), (82, 20223), (85, 20235),

Gene: Ollypop_28 Start: 18917, Stop: 19444, Start Num: 15

Candidate Starts for Ollypop_28:

(14, 18914), (Start: 15 @18917 has 10 MA's), (22, 18950), (23, 18953), (28, 18983), (37, 19046), (40, 19064), (43, 19094), (45, 19103), (46, 19109), (55, 19190), (56, 19193), (74, 19286), (79, 19304), (82, 19313),

Gene: OneinaGillian_31 Start: 20129, Stop: 20626, Start Num: 18

Candidate Starts for OneinaGillian_31:

(12, 19901), (13, 19916), (Start: 15 @20114 has 10 MA's), (Start: 18 @20129 has 38 MA's), (30, 20201), (54, 20366), (57, 20384), (73, 20468), (76, 20480), (78, 20486), (96, 20573), (97, 20582),

Gene: Pepe25_30 Start: 20353, Stop: 20844, Start Num: 18

Candidate Starts for Pepe25_30:

(2, 19546), (4, 19693), (5, 19723), (7, 19855), (9, 20005), (12, 20128), (13, 20143), (Start: 18 @20353 has 38 MA's), (25, 20383), (54, 20584), (56, 20596), (57, 20602), (60, 20617), (73, 20686), (76, 20698), (96, 20791), (97, 20800),

Gene: Phabia_32 Start: 21531, Stop: 22061, Start Num: 18

Candidate Starts for Phabia_32:

(12, 21300), (Start: 18 @21531 has 38 MA's), (39, 21672), (45, 21723), (50, 21768), (54, 21795), (58, 21819), (61, 21831), (76, 21909), (87, 21945), (89, 21963), (92, 21975), (100, 22038),

Gene: Phinky_38 Start: 22707, Stop: 23231, Start Num: 18

Candidate Starts for Phinky_38:

(12, 22479), (Start: 18 @22707 has 38 MA's), (35, 22821), (37, 22833), (41, 22860), (50, 22944), (53, 22965), (54, 22971), (76, 23085), (79, 23094), (83, 23106), (89, 23139), (92, 23151),

Gene: Pointis_32 Start: 19831, Stop: 20358, Start Num: 15

Candidate Starts for Pointis_32:

(14, 19828), (Start: 15 @19831 has 10 MA's), (17, 19843), (22, 19867), (23, 19870), (31, 19918), (37, 19963), (43, 20008), (46, 20023), (55, 20104), (56, 20107), (62, 20137), (74, 20200), (79, 20218), (80, 20221), (82, 20227), (85, 20239),

Gene: Pureglobe5_34 Start: 20014, Stop: 20541, Start Num: 15

Candidate Starts for Pureglobe5_34:

(14, 20011), (Start: 15 @20014 has 10 MA's), (17, 20026), (22, 20050), (23, 20053), (31, 20101), (37, 20146), (43, 20191), (46, 20206), (55, 20287), (56, 20290), (62, 20320), (74, 20383), (79, 20401), (80, 20404), (82, 20410), (85, 20422),

Gene: Quammi_30 Start: 21103, Stop: 21633, Start Num: 18

Candidate Starts for Quammi_30:

(12, 20872), (Start: 18 @21103 has 38 MA's), (45, 21295), (54, 21367), (58, 21391), (76, 21481), (87, 21517), (89, 21535), (92, 21547),

Gene: Ranunculus_26 Start: 18939, Stop: 19457, Start Num: 15

Candidate Starts for Ranunculus_26:

(14, 18936), (Start: 15 @18939 has 10 MA's), (22, 18966), (28, 18999), (36, 19059), (37, 19062), (45, 19119), (55, 19203), (56, 19206), (62, 19236), (63, 19239), (74, 19299), (79, 19317), (82, 19326), (91, 19371),

Gene: RazzB_27 Start: 18313, Stop: 18840, Start Num: 15

Candidate Starts for RazzB_27:

(14, 18310), (Start: 15 @18313 has 10 MA's), (17, 18325), (22, 18349), (23, 18352), (31, 18400), (37, 18445), (43, 18490), (46, 18505), (55, 18586), (56, 18589), (62, 18619), (74, 18682), (79, 18700), (80, 18703), (82, 18709), (85, 18721),

Gene: Rizwana_26 Start: 19077, Stop: 19556, Start Num: 15

Candidate Starts for Rizwana_26:

(10, 18750), (11, 18828), (13, 18882), (Start: 15 @19077 has 10 MA's), (25, 19125), (26, 19128), (27, 19134), (38, 19197), (43, 19218), (47, 19236), (59, 19329), (62, 19344), (64, 19356), (66, 19368), (68, 19374), (96, 19506), (99, 19536), (100, 19542),

Gene: RobinRose_33 Start: 20618, Stop: 21130, Start Num: 15

Candidate Starts for RobinRose_33:

(12, 20405), (13, 20420), (Start: 15 @20618 has 10 MA's), (Start: 18 @20633 has 38 MA's), (30, 20705), (45, 20798), (54, 20870), (57, 20888), (73, 20972), (76, 20984), (78, 20990), (96, 21077), (97, 21086),

Gene: RomansRevenge_23 Start: 18318, Stop: 18812, Start Num: 19

Candidate Starts for RomansRevenge_23:

(Start: 15 @18303 has 10 MA's), (Start: 19 @18318 has 2 MA's), (23, 18339), (29, 18372), (43, 18468), (45, 18477), (54, 18552), (57, 18570), (58, 18576), (62, 18594), (63, 18597), (65, 18612), (66, 18621), (68, 18627), (79, 18678), (82, 18687), (88, 18720), (97, 18771),

Gene: Romm_33 Start: 20633, Stop: 21130, Start Num: 18

Candidate Starts for Romm_33:

(12, 20405), (13, 20420), (Start: 15 @20618 has 10 MA's), (Start: 18 @20633 has 38 MA's), (30, 20705), (45, 20798), (54, 20870), (57, 20888), (73, 20972), (76, 20984), (78, 20990), (96, 21077), (97, 21086),

Gene: Rowlf_28 Start: 21278, Stop: 21808, Start Num: 18

Candidate Starts for Rowlf_28:

(12, 21047), (Start: 18 @21278 has 38 MA's), (45, 21470), (54, 21542), (58, 21566), (76, 21656), (87, 21692), (89, 21710), (92, 21722),

Gene: RubyRalph_34 Start: 21173, Stop: 21700, Start Num: 18

Candidate Starts for RubyRalph_34:

(3, 20483), (6, 20630), (8, 20810), (12, 20945), (13, 20963), (Start: 18 @21173 has 38 MA's), (35, 21281), (38, 21299), (54, 21440), (58, 21464), (76, 21554), (79, 21563), (97, 21656),

Gene: Rudy_30 Start: 21136, Stop: 21666, Start Num: 18

Candidate Starts for Rudy_30:

(12, 20905), (Start: 18 @21136 has 38 MA's), (45, 21328), (54, 21400), (58, 21424), (76, 21514), (87, 21550), (89, 21568), (92, 21580),

Gene: SadLad_36 Start: 22116, Stop: 22643, Start Num: 18

Candidate Starts for SadLad_36:

(Start: 16 @22110 has 1 MA's), (Start: 18 @22116 has 38 MA's), (35, 22224), (38, 22242), (54, 22383), (58, 22407), (76, 22497), (79, 22506), (97, 22599),

Gene: SallyK_33 Start: 22211, Stop: 22741, Start Num: 18

Candidate Starts for SallyK_33:

(12, 21980), (Start: 18 @22211 has 38 MA's), (39, 22352), (45, 22403), (50, 22448), (54, 22475), (58, 22499), (61, 22511), (76, 22589), (87, 22625), (89, 22643), (92, 22655), (100, 22718),

Gene: SilentRX_27 Start: 20093, Stop: 20590, Start Num: 19

Candidate Starts for SilentRX_27:

(Start: 19 @20093 has 2 MA's), (45, 20255), (48, 20282), (51, 20309), (56, 20342), (58, 20354), (59, 20357), (62, 20372), (67, 20399), (70, 20420), (74, 20435), (79, 20453), (82, 20462), (97, 20540),

Gene: Sillytadpoles_33 Start: 21101, Stop: 21631, Start Num: 18

Candidate Starts for Sillytadpoles_33:

(12, 20870), (Start: 18 @21101 has 38 MA's), (39, 21242), (45, 21293), (50, 21338), (54, 21365), (58, 21389), (61, 21401), (76, 21479), (87, 21515), (89, 21533), (92, 21545), (100, 21608),

Gene: Squash_34 Start: 22160, Stop: 22690, Start Num: 18

Candidate Starts for Squash_34:

(Start: 18 @22160 has 38 MA's), (45, 22352), (54, 22424), (58, 22448), (76, 22538), (87, 22574), (89, 22592), (92, 22604),

Gene: Statler_34 Start: 22020, Stop: 22550, Start Num: 18

Candidate Starts for Statler_34:

(12, 21789), (Start: 18 @22020 has 38 MA's), (39, 22161), (45, 22212), (50, 22257), (54, 22284), (58, 22308), (61, 22320), (76, 22398), (87, 22434), (92, 22464), (100, 22527),

Gene: StrawberryJamm_34 Start: 21340, Stop: 21870, Start Num: 18

Candidate Starts for StrawberryJamm_34:

(12, 21109), (Start: 18 @21340 has 38 MA's), (45, 21532), (54, 21604), (58, 21628), (76, 21718), (87, 21754), (89, 21772), (92, 21784),

Gene: Sunfish_40 Start: 22467, Stop: 23003, Start Num: 18

Candidate Starts for Sunfish_40:

(Start: 18 @22467 has 38 MA's), (23, 22497), (26, 22512), (45, 22641), (47, 22650), (54, 22722), (81, 22851), (84, 22860),

Gene: Tank_27 Start: 19021, Stop: 19503, Start Num: 15

Candidate Starts for Tank_27:

(10, 18694), (13, 18826), (Start: 15 @19021 has 10 MA's), (23, 19057), (26, 19072), (27, 19078), (38, 19141), (43, 19162), (46, 19177), (47, 19180), (48, 19198), (52, 19231), (59, 19276), (64, 19303), (66, 19315), (82, 19381), (94, 19444), (96, 19453), (99, 19483),

Gene: Teehee_33 Start: 22337, Stop: 22867, Start Num: 18

Candidate Starts for Teehee_33:

(12, 22106), (Start: 18 @22337 has 38 MA's), (39, 22478), (45, 22529), (50, 22574), (54, 22601), (58, 22625), (61, 22637), (76, 22715), (87, 22751), (89, 22769), (92, 22781), (100, 22844),

Gene: Tempo_31 Start: 20509, Stop: 21006, Start Num: 18

Candidate Starts for Tempo_31:

(5, 19876), (7, 20008), (12, 20281), (13, 20296), (Start: 15 @20494 has 10 MA's), (Start: 18 @20509 has 38 MA's), (30, 20581), (45, 20674), (54, 20746), (57, 20764), (73, 20848), (76, 20860), (78, 20866), (96, 20953), (97, 20962),

Gene: Tissue_32 Start: 21857, Stop: 22384, Start Num: 18

Candidate Starts for Tissue_32:

(12, 21626), (Start: 18 @21857 has 38 MA's), (45, 22046), (50, 22091), (54, 22118), (58, 22142), (76, 22232), (87, 22268), (89, 22286), (92, 22298), (100, 22361),

Gene: Viceroy_31 Start: 21103, Stop: 21633, Start Num: 18

Candidate Starts for Viceroy_31:

(12, 20872), (Start: 18 @21103 has 38 MA's), (45, 21295), (54, 21367), (58, 21391), (76, 21481), (87, 21517), (89, 21535), (92, 21547),

Gene: Wayne3_33 Start: 22100, Stop: 22630, Start Num: 18

Candidate Starts for Wayne3_33:

(12, 21869), (Start: 18 @22100 has 38 MA's), (39, 22241), (45, 22292), (50, 22337), (54, 22364), (58, 22388), (61, 22400), (76, 22478), (87, 22514), (89, 22532), (92, 22544), (100, 22607),

Gene: Wheelie_31 Start: 21418, Stop: 21948, Start Num: 18

Candidate Starts for Wheelie_31:

(12, 21187), (Start: 18 @21418 has 38 MA's), (39, 21559), (45, 21610), (50, 21655), (54, 21682), (58, 21706), (61, 21718), (76, 21796), (87, 21832), (89, 21850), (92, 21862), (100, 21925),

Gene: Wilca_31 Start: 20336, Stop: 20827, Start Num: 18

Candidate Starts for Wilca_31:

(1, 18518), (2, 19529), (4, 19676), (5, 19706), (7, 19838), (9, 19988), (12, 20111), (13, 20126), (Start: 18 @20336 has 38 MA's), (25, 20366), (54, 20567), (56, 20579), (57, 20585), (60, 20600), (73, 20669), (76, 20681), (96, 20774), (97, 20783),

Gene: Wilde_27 Start: 18950, Stop: 19432, Start Num: 15

Candidate Starts for Wilde_27:

(10, 18623), (13, 18755), (Start: 15 @18950 has 10 MA's), (26, 19001), (27, 19007), (38, 19070), (43, 19091), (44, 19094), (46, 19106), (47, 19109), (48, 19127), (59, 19205), (64, 19232), (66, 19244), (82, 19310), (94, 19373), (96, 19382), (99, 19412),

Gene: Zagie_32 Start: 21541, Stop: 22071, Start Num: 18

Candidate Starts for Zagie_32:

(Start: 18 @21541 has 38 MA's), (45, 21733), (54, 21805), (58, 21829), (76, 21919), (87, 21955), (89, 21973), (92, 21985),

Gene: Zhafia_35 Start: 21896, Stop: 22426, Start Num: 18

Candidate Starts for Zhafia_35:

(12, 21665), (Start: 18 @21896 has 38 MA's), (39, 22037), (45, 22088), (50, 22133), (54, 22160), (58, 22184), (61, 22196), (76, 22274), (87, 22310), (89, 22328), (92, 22340), (100, 22403),

Gene: phiAsp2_20 Start: 13014, Stop: 13562, Start Num: 21

Candidate Starts for phiAsp2_20:

(14, 12978), (21, 13014), (23, 13029), (24, 13035), (32, 13086), (38, 13131), (39, 13143), (49, 13218), (69, 13356), (71, 13368), (72, 13371), (77, 13389), (90, 13443), (95, 13473), (98, 13500),