

Pham 291023



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 291023 Report

This analysis was run 03/28/26 on database version 641.

Pham number 291023 has 96 members, 23 are drafts.

Phages represented in each track:

- Track 1 : Ranunculus_26
- Track 2 : Rizwana_26
- Track 3 : Wilde_27
- Track 4 : Tank_27
- Track 5 : Odyssey395_34, Forrestell_29, Beagle_33, Pointis_32, RazzB_28, MellowYellow_29, RIPWilbur_30, DogYard_32, Pureglobe5_34, Kubulix_33
- Track 6 : BetaFish_32, NyleyClemson_28, Popstraw_30, Hive_32
- Track 7 : Ollypop_30
- Track 8 : PhuzzTulsa_30
- Track 9 : Ren19_25, Nikan_27
- Track 10 : BruhMoment_27
- Track 11 : SilentRX_27
- Track 12 : AWGoat_25
- Track 13 : Purplicious_50, Amo99_52, Jollymon_51, ColdSoup_52
- Track 14 : Stillion_51
- Track 15 : Grumio_51, Sting_50, KingstonB_52, DonTron_51
- Track 16 : Soos_47
- Track 17 : DonaldDuck_31, Llemily_31
- Track 18 : Phabia_32, Lonelysoil_31, Zhafia_34, MorillMayhem_31, Wheelie_31, Jehoshaphat_34, Casend_33, Teehee_33, BaconCheese_35, Wayne3_33
- Track 19 : Fizzles_32
- Track 20 : SallyK_33, SlySloth_34, WheelerS25_37
- Track 21 : BabyDotz_31
- Track 22 : Mashley_30, Mentos_37, Zagie_32, Hyperion_31, AluminumJesus_30, Blab_30
- Track 23 : Fregley_32, OneinaGillian_31
- Track 24 : Rudy_30, Quammi_30, Rowlf_28, Viceroy_31, StrawberryJamm_34
- Track 25 : Gazebo_31, Mila11_35
- Track 26 : Kelcole_30, CandC_30, KillerQueen_32, Tempo_31
- Track 27 : RobinRose_33
- Track 28 : SadLad_36
- Track 29 : Pepe25_30
- Track 30 : Fransoyer_34
- Track 31 : RubyRalph_34
- Track 32 : Romm_33
- Track 33 : Nike_32
- Track 34 : BirdInFrench_31, Wilca_31

- Track 35 : Tissue_32
- Track 36 : Marcie_36
- Track 37 : EverythinBagel_31
- Track 38 : Phinky_38
- Track 39 : Kyva_34, Namago_32, Grassboy_33
- Track 40 : Squash_34
- Track 41 : Judebell_34, FrankDeliGuy_29
- Track 42 : Altheas_34
- Track 43 : Statler_33
- Track 44 : Sillytadpoles_32
- Track 45 : RomansRevenge_23, Boise_23
- Track 46 : Tonitrus_38

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

The start number called the most often in the published annotations is 32, it was called in 49 of the 73 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Altheas_34, AluminumJesus_30, BabyDotz_31, BaconCheese_35, BirdInFrench_31, Blab_30, CandC_30, Casend_33, DonaldDuck_31, EverythinBagel_31, Fizzles_32, FrankDeliGuy_29, Fransoyer_34, Fregley_32, Gazebo_31, Grassboy_33, Hyperion_31, Jehoshaphat_34, Judebell_34, Kelcole_30, KillerQueen_32, Kyva_34, Lemily_31, Lonelysoil_31, Marcie_36, Mashley_30, Mentos_37, Mila11_35, 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_32, SlySloth_34, Squash_34, Statler_33, StrawberryJamm_34, Teehee_33, Tempo_31, Tissue_32, Viceroy_31, Wayne3_33, WheelerS25_37, Wheelie_31, Wilca_31, Zagie_32, Zhafia_34,

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, Amo99_52, Beagle_33, BetaFish_32, Boise_23, BruhMoment_27, ColdSoup_52, DogYard_32, DonTron_51, Forrestell_29, Grumio_51, Hive_32, Jollymon_51, KingstonB_52, Kubulix_33, MellowYellow_29, Nikan_27, NyleyClemson_28, Odyssey395_34, Ollypop_30, PhuzzTulsa_30, Pointis_32, Popstraw_30, Pureglobe5_34, Purplicious_50, RIPWilbur_30, Ranunculus_26, RazzB_28, Ren19_25, Rizwana_26, RomansRevenge_23, SilentRX_27, Soos_47, Stillion_51, Sting_50, Tank_27, Tonitrus_38, Wilde_27,

Summary by start number:

Start 26:

- Found in 10 of 96 (10.4%) of genes in pham
- Manual Annotations of this start: 4 of 73
- Called 100.0% of time when present

- Phage (with cluster) where this start called: Amo99_52 (CP), ColdSoup_52 (CP), DonTron_51 (CP), Grumio_51 (CP), Jollymon_51 (CP), KingstonB_52 (CP), Purplicious_50 (CP), Soos_47 (CP), Stillion_51 (CP), Sting_50 (CP),

Start 27:

- Found in 19 of 96 (19.8%) of genes in pham
- Manual Annotations of this start: 1 of 73
- Called 36.8% of time when present
- Phage (with cluster) where this start called: BetaFish_32 (AP2), Hive_32 (AP2), Nikan_27 (AP2), NyleyClemson_28 (AP2), Ollypop_30 (AP2), Popstraw_30 (AP2), Ren19_25 (AP2),

Start 28:

- Found in 31 of 96 (32.3%) of genes in pham
- Manual Annotations of this start: 14 of 73
- Called 51.6% of time when present
- Phage (with cluster) where this start called: Beagle_33 (AP2), DogYard_32 (AP2), Forrestell_29 (AP2), Kubulix_33 (AP2), MellowYellow_29 (AP2), Odyssey395_34 (AP2), PhuzzTulsa_30 (AP2), Pointis_32 (AP2), Pureglobe5_34 (AP2), RIPWilbur_30 (AP2), Ranunculus_26 (AP), RazzB_28 (AP2), Rizwana_26 (AP1), RobinRose_33 (EG), Tank_27 (AP1), Wilde_27 (AP1),

Start 29:

- Found in 1 of 96 (1.0%) of genes in pham
- Manual Annotations of this start: 1 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Tonitrus_38 (singleton),

Start 30:

- Found in 3 of 96 (3.1%) of genes in pham
- Manual Annotations of this start: 1 of 73
- Called 33.3% of time when present
- Phage (with cluster) where this start called: BruhMoment_27 (AP3),

Start 32:

- Found in 58 of 96 (60.4%) of genes in pham
- Manual Annotations of this start: 49 of 73
- Called 98.3% of time when present
- Phage (with cluster) where this start called: Altheas_34 (EG), AluminumJesus_30 (EG), BabyDotz_31 (EG), BaconCheese_35 (EG), BirdInFrench_31 (EG), Blab_30 (EG), CandC_30 (EG), Casend_33 (EG), DonaldDuck_31 (EG), EverythinBagel_31 (EG), Fizzles_32 (EG), FrankDeliGuy_29 (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), KillerQueen_32 (EG), Kyva_34 (EG), Llemily_31 (EG), Lonelysoil_31 (EG), Marcie_36 (EG), Mashley_30 (EG), Mentos_37 (EG), Mila11_35 (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_32 (EG), SlySloth_34 (EG), Squash_34 (EG), Statler_33 (EG), StrawberryJamm_34 (EG), Teehee_33 (EG), Tempo_31 (EG), Tissue_32 (EG), Viceroy_31 (EG), Wayne3_33 (EG), WheelerS25_37 (EG), Wheelie_31 (EG), Wilca_31 (EG), Zagie_32 (EG), Zhafia_34 (EG),

Start 33:

- Found in 4 of 96 (4.2%) of genes in pham
- Manual Annotations of this start: 3 of 73
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AWGoat_25 (AP4), Boise_23 (FT), RomansRevenge_23 (FT), SilentRX_27 (AP4),

Summary by clusters:

There are 9 clusters represented in this pham: singleton, FT, AP2, AP3, EG, AP1, AP4, AP, CP,

Info for manual annotations of cluster AP:

- Start number 28 was manually annotated 1 time for cluster AP.

Info for manual annotations of cluster AP1:

- Start number 28 was manually annotated 3 times for cluster AP1.

Info for manual annotations of cluster AP2:

- Start number 27 was manually annotated 1 time for cluster AP2.
- Start number 28 was manually annotated 9 times for cluster AP2.

Info for manual annotations of cluster AP3:

- Start number 30 was manually annotated 1 time for cluster AP3.

Info for manual annotations of cluster AP4:

- Start number 33 was manually annotated 2 times for cluster AP4.

Info for manual annotations of cluster CP:

- Start number 26 was manually annotated 4 times for cluster CP.

Info for manual annotations of cluster EG:

- Start number 28 was manually annotated 1 time for cluster EG.
- Start number 32 was manually annotated 49 times for cluster EG.

Info for manual annotations of cluster FT:

- Start number 33 was manually annotated 1 time for cluster FT.

Gene Information:

Gene: AWGoat_25 Start: 20372, Stop: 20869, Start Num: 33

Candidate Starts for AWGoat_25:

(Start: 33 @20372 has 3 MA's), (60, 20534), (65, 20561), (67, 20588), (73, 20621), (75, 20633), (76, 20636), (80, 20651), (86, 20678), (88, 20699), (91, 20714), (95, 20732), (97, 20738), (98, 20741), (110, 20819), (112, 20840),

Gene: Altheas_34 Start: 21898, Stop: 22431, Start Num: 32

Candidate Starts for Altheas_34:

(15, 21532), (20, 21667), (Start: 32 @21898 has 49 MA's), (56, 22072), (70, 22165), (93, 22279), (104, 22333), (106, 22345),

Gene: AluminumJesus_30 Start: 21395, Stop: 21925, Start Num: 32
Candidate Starts for AluminumJesus_30:
(Start: 32 @21395 has 49 MA's), (60, 21587), (70, 21659), (75, 21683), (93, 21773), (102, 21809),
(104, 21827), (106, 21839),

Gene: Amo99_52 Start: 28627, Stop: 29169, Start Num: 26
Candidate Starts for Amo99_52:
(18, 28333), (22, 28435), (25, 28549), (Start: 26 @28627 has 4 MA's), (35, 28657), (36, 28660), (48,
28747), (66, 28870), (84, 28966), (95, 29035), (103, 29077), (111, 29140),

Gene: BabyDotz_31 Start: 21663, Stop: 22193, Start Num: 32
Candidate Starts for BabyDotz_31:
(20, 21432), (Start: 32 @21663 has 49 MA's), (53, 21804), (60, 21855), (66, 21900), (70, 21927), (75,
21951), (78, 21963), (93, 22041), (102, 22077), (106, 22107), (113, 22170),

Gene: BaconCheese_35 Start: 22912, Stop: 23442, Start Num: 32
Candidate Starts for BaconCheese_35:
(20, 22681), (Start: 32 @22912 has 49 MA's), (53, 23053), (60, 23104), (66, 23149), (70, 23176), (75,
23200), (78, 23212), (93, 23290), (102, 23326), (104, 23344), (106, 23356), (113, 23419),

Gene: Beagle_33 Start: 19814, Stop: 20341, Start Num: 28
Candidate Starts for Beagle_33:
(Start: 27 @19811 has 1 MA's), (Start: 28 @19814 has 14 MA's), (31, 19826), (37, 19850), (38, 19853),
(45, 19901), (51, 19946), (57, 19991), (62, 20006), (72, 20087), (73, 20090), (80, 20120), (91, 20183),
(95, 20201), (96, 20204), (98, 20210), (100, 20222),

Gene: BetaFish_32 Start: 20005, Stop: 20535, Start Num: 27
Candidate Starts for BetaFish_32:
(Start: 27 @20005 has 1 MA's), (Start: 28 @20008 has 14 MA's), (31, 20020), (37, 20044), (38, 20047),
(45, 20095), (51, 20140), (57, 20185), (62, 20200), (72, 20281), (73, 20284), (80, 20314), (91, 20377),
(95, 20395), (96, 20398), (98, 20404), (100, 20416),

Gene: BirdInFrench_31 Start: 20336, Stop: 20827, Start Num: 32
Candidate Starts for BirdInFrench_31:
(1, 18518), (2, 19529), (6, 19676), (7, 19706), (13, 19838), (16, 19988), (20, 20111), (23, 20126),
(Start: 32 @20336 has 49 MA's), (39, 20366), (70, 20567), (73, 20579), (74, 20585), (77, 20600), (90,
20669), (93, 20681), (109, 20774), (110, 20783),

Gene: Blab_30 Start: 21320, Stop: 21850, Start Num: 32
Candidate Starts for Blab_30:
(Start: 32 @21320 has 49 MA's), (60, 21512), (70, 21584), (75, 21608), (93, 21698), (102, 21734),
(104, 21752), (106, 21764),

Gene: Boise_23 Start: 18318, Stop: 18812, Start Num: 33
Candidate Starts for Boise_23:
(Start: 28 @18303 has 14 MA's), (Start: 33 @18318 has 3 MA's), (38, 18339), (43, 18372), (57, 18468),
(60, 18477), (70, 18552), (74, 18570), (75, 18576), (80, 18594), (81, 18597), (83, 18612), (85, 18621),
(87, 18627), (95, 18678), (98, 18687), (103, 18720), (110, 18771),

Gene: BruhMoment_27 Start: 19390, Stop: 19878, Start Num: 30
Candidate Starts for BruhMoment_27:

(Start: 30 @19390 has 1 MA's), (40, 19435), (46, 19471), (47, 19486), (60, 19540), (73, 19633), (74, 19639), (75, 19645), (87, 19693), (92, 19735), (95, 19744), (98, 19753), (101, 19768), (105, 19798), (107, 19804), (112, 19858), (113, 19864),

Gene: CandC_30 Start: 20030, Stop: 20527, Start Num: 32

Candidate Starts for CandC_30:

(7, 19397), (13, 19529), (20, 19802), (23, 19817), (Start: 28 @20015 has 14 MA's), (Start: 32 @20030 has 49 MA's), (44, 20102), (60, 20195), (70, 20267), (74, 20285), (90, 20369), (93, 20381), (94, 20387), (109, 20474), (110, 20483),

Gene: Casend_33 Start: 22072, Stop: 22602, Start Num: 32

Candidate Starts for Casend_33:

(20, 21841), (Start: 32 @22072 has 49 MA's), (53, 22213), (60, 22264), (66, 22309), (70, 22336), (75, 22360), (78, 22372), (93, 22450), (102, 22486), (104, 22504), (106, 22516), (113, 22579),

Gene: ColdSoup_52 Start: 28627, Stop: 29169, Start Num: 26

Candidate Starts for ColdSoup_52:

(18, 28333), (22, 28435), (25, 28549), (Start: 26 @28627 has 4 MA's), (35, 28657), (36, 28660), (48, 28747), (66, 28870), (84, 28966), (95, 29035), (103, 29077), (111, 29140),

Gene: DogYard_32 Start: 19702, Stop: 20229, Start Num: 28

Candidate Starts for DogYard_32:

(Start: 27 @19699 has 1 MA's), (Start: 28 @19702 has 14 MA's), (31, 19714), (37, 19738), (38, 19741), (45, 19789), (51, 19834), (57, 19879), (62, 19894), (72, 19975), (73, 19978), (80, 20008), (91, 20071), (95, 20089), (96, 20092), (98, 20098), (100, 20110),

Gene: DonTron_51 Start: 28667, Stop: 29209, Start Num: 26

Candidate Starts for DonTron_51:

(3, 27938), (4, 27956), (9, 28085), (11, 28160), (12, 28175), (14, 28187), (18, 28373), (22, 28475), (25, 28589), (Start: 26 @28667 has 4 MA's), (35, 28697), (36, 28700), (48, 28787), (66, 28910), (84, 29006), (95, 29075), (103, 29117), (111, 29180),

Gene: DonaldDuck_31 Start: 21418, Stop: 21948, Start Num: 32

Candidate Starts for DonaldDuck_31:

(Start: 32 @21418 has 49 MA's), (53, 21559), (60, 21610), (66, 21655), (70, 21682), (75, 21706), (78, 21718), (93, 21796), (102, 21832), (104, 21850), (106, 21862), (113, 21925),

Gene: EverythinBagel_31 Start: 21806, Stop: 22336, Start Num: 32

Candidate Starts for EverythinBagel_31:

(20, 21575), (Start: 32 @21806 has 49 MA's), (53, 21947), (60, 21998), (66, 22043), (70, 22070), (75, 22094), (78, 22106), (93, 22184), (102, 22220), (106, 22250), (113, 22313),

Gene: Fizzles_32 Start: 21131, Stop: 21658, Start Num: 32

Candidate Starts for Fizzles_32:

(20, 20903), (Start: 32 @21131 has 49 MA's), (34, 21140), (60, 21320), (66, 21365), (69, 21386), (70, 21392), (93, 21506), (104, 21560), (106, 21572),

Gene: Forrestell_29 Start: 18513, Stop: 19040, Start Num: 28

Candidate Starts for Forrestell_29:

(Start: 27 @18510 has 1 MA's), (Start: 28 @18513 has 14 MA's), (31, 18525), (37, 18549), (38, 18552), (45, 18600), (51, 18645), (57, 18690), (62, 18705), (72, 18786), (73, 18789), (80, 18819), (91, 18882), (95, 18900), (96, 18903), (98, 18909), (100, 18921),

Gene: FrankDeliGuy_29 Start: 21381, Stop: 21908, Start Num: 32

Candidate Starts for FrankDeliGuy_29:

(Start: 32 @21381 has 49 MA's), (60, 21570), (66, 21615), (70, 21642), (75, 21666), (93, 21756), (102, 21792), (104, 21810), (106, 21822), (113, 21885),

Gene: Fransoyer_34 Start: 21245, Stop: 21772, Start Num: 32

Candidate Starts for Fransoyer_34:

(Start: 30 @21239 has 1 MA's), (Start: 32 @21245 has 49 MA's), (39, 21281), (49, 21353), (52, 21371), (70, 21512), (75, 21536), (93, 21626), (95, 21635), (110, 21728),

Gene: Fregley_32 Start: 20600, Stop: 21097, Start Num: 32

Candidate Starts for Fregley_32:

(20, 20372), (23, 20387), (Start: 28 @20585 has 14 MA's), (Start: 32 @20600 has 49 MA's), (44, 20672), (70, 20837), (74, 20855), (90, 20939), (93, 20951), (94, 20957), (109, 21044), (110, 21053),

Gene: Gazebo_31 Start: 21858, Stop: 22388, Start Num: 32

Candidate Starts for Gazebo_31:

(Start: 32 @21858 has 49 MA's), (60, 22050), (70, 22122), (75, 22146), (93, 22236), (102, 22272), (104, 22290), (106, 22302),

Gene: Grassboy_33 Start: 22032, Stop: 22562, Start Num: 32

Candidate Starts for Grassboy_33:

(20, 21801), (Start: 32 @22032 has 49 MA's), (60, 22224), (70, 22296), (75, 22320), (93, 22410), (102, 22446), (104, 22464), (106, 22476),

Gene: Grumio_51 Start: 28105, Stop: 28647, Start Num: 26

Candidate Starts for Grumio_51:

(3, 27376), (4, 27394), (9, 27523), (11, 27598), (12, 27613), (14, 27625), (18, 27811), (22, 27913), (25, 28027), (Start: 26 @28105 has 4 MA's), (35, 28135), (36, 28138), (48, 28225), (66, 28348), (84, 28444), (95, 28513), (103, 28555), (111, 28618),

Gene: Hive_32 Start: 19886, Stop: 20416, Start Num: 27

Candidate Starts for Hive_32:

(Start: 27 @19886 has 1 MA's), (Start: 28 @19889 has 14 MA's), (31, 19901), (37, 19925), (38, 19928), (45, 19976), (51, 20021), (57, 20066), (62, 20081), (72, 20162), (73, 20165), (80, 20195), (91, 20258), (95, 20276), (96, 20279), (98, 20285), (100, 20297),

Gene: Hyperion_31 Start: 21815, Stop: 22345, Start Num: 32

Candidate Starts for Hyperion_31:

(Start: 32 @21815 has 49 MA's), (60, 22007), (70, 22079), (75, 22103), (93, 22193), (102, 22229), (104, 22247), (106, 22259),

Gene: Jehoshaphat_34 Start: 22337, Stop: 22867, Start Num: 32

Candidate Starts for Jehoshaphat_34:

(20, 22106), (Start: 32 @22337 has 49 MA's), (53, 22478), (60, 22529), (66, 22574), (70, 22601), (75, 22625), (78, 22637), (93, 22715), (102, 22751), (104, 22769), (106, 22781), (113, 22844),

Gene: Jollymon_51 Start: 28627, Stop: 29169, Start Num: 26

Candidate Starts for Jollymon_51:

(18, 28333), (22, 28435), (25, 28549), (Start: 26 @28627 has 4 MA's), (35, 28657), (36, 28660), (48, 28747), (66, 28870), (84, 28966), (95, 29035), (103, 29077), (111, 29140),

Gene: Judebell_34 Start: 21846, Stop: 22373, Start Num: 32

Candidate Starts for Judebell_34:

(Start: 32 @21846 has 49 MA's), (60, 22035), (66, 22080), (70, 22107), (75, 22131), (93, 22221), (102, 22257), (104, 22275), (106, 22287), (113, 22350),

Gene: Kelcole_30 Start: 20482, Stop: 20979, Start Num: 32

Candidate Starts for Kelcole_30:

(7, 19849), (13, 19981), (20, 20254), (23, 20269), (Start: 28 @20467 has 14 MA's), (Start: 32 @20482 has 49 MA's), (44, 20554), (60, 20647), (70, 20719), (74, 20737), (90, 20821), (93, 20833), (94, 20839), (109, 20926), (110, 20935),

Gene: KillerQueen_32 Start: 20277, Stop: 20774, Start Num: 32

Candidate Starts for KillerQueen_32:

(7, 19644), (13, 19776), (20, 20049), (23, 20064), (Start: 28 @20262 has 14 MA's), (Start: 32 @20277 has 49 MA's), (44, 20349), (60, 20442), (70, 20514), (74, 20532), (90, 20616), (93, 20628), (94, 20634), (109, 20721), (110, 20730),

Gene: KingstonB_52 Start: 28105, Stop: 28647, Start Num: 26

Candidate Starts for KingstonB_52:

(3, 27376), (4, 27394), (9, 27523), (11, 27598), (12, 27613), (14, 27625), (18, 27811), (22, 27913), (25, 28027), (Start: 26 @28105 has 4 MA's), (35, 28135), (36, 28138), (48, 28225), (66, 28348), (84, 28444), (95, 28513), (103, 28555), (111, 28618),

Gene: Kubulix_33 Start: 19998, Stop: 20525, Start Num: 28

Candidate Starts for Kubulix_33:

(Start: 27 @19995 has 1 MA's), (Start: 28 @19998 has 14 MA's), (31, 20010), (37, 20034), (38, 20037), (45, 20085), (51, 20130), (57, 20175), (62, 20190), (72, 20271), (73, 20274), (80, 20304), (91, 20367), (95, 20385), (96, 20388), (98, 20394), (100, 20406),

Gene: Kyva_34 Start: 22067, Stop: 22597, Start Num: 32

Candidate Starts for Kyva_34:

(20, 21836), (Start: 32 @22067 has 49 MA's), (60, 22259), (70, 22331), (75, 22355), (93, 22445), (102, 22481), (104, 22499), (106, 22511),

Gene: Llemily_31 Start: 21113, Stop: 21643, Start Num: 32

Candidate Starts for Llemily_31:

(Start: 32 @21113 has 49 MA's), (53, 21254), (60, 21305), (66, 21350), (70, 21377), (75, 21401), (78, 21413), (93, 21491), (102, 21527), (104, 21545), (106, 21557), (113, 21620),

Gene: Lonelysoil_31 Start: 21358, Stop: 21888, Start Num: 32

Candidate Starts for Lonelysoil_31:

(20, 21127), (Start: 32 @21358 has 49 MA's), (53, 21499), (60, 21550), (66, 21595), (70, 21622), (75, 21646), (78, 21658), (93, 21736), (102, 21772), (104, 21790), (106, 21802), (113, 21865),

Gene: Marcie_36 Start: 21138, Stop: 21635, Start Num: 32

Candidate Starts for Marcie_36:

(20, 20910), (23, 20925), (Start: 28 @21123 has 14 MA's), (Start: 32 @21138 has 49 MA's), (60, 21303), (70, 21375), (74, 21393), (77, 21408), (90, 21477), (93, 21489), (94, 21495), (109, 21582), (110, 21591),

Gene: Mashley_30 Start: 21630, Stop: 22160, Start Num: 32

Candidate Starts for Mashley_30:

(Start: 32 @21630 has 49 MA's), (60, 21822), (70, 21894), (75, 21918), (93, 22008), (102, 22044), (104, 22062), (106, 22074),

Gene: MellowYellow_29 Start: 18549, Stop: 19076, Start Num: 28

Candidate Starts for MellowYellow_29:

(Start: 27 @18546 has 1 MA's), (Start: 28 @18549 has 14 MA's), (31, 18561), (37, 18585), (38, 18588), (45, 18636), (51, 18681), (57, 18726), (62, 18741), (72, 18822), (73, 18825), (80, 18855), (91, 18918), (95, 18936), (96, 18939), (98, 18945), (100, 18957),

Gene: Mentos_37 Start: 22717, Stop: 23247, Start Num: 32

Candidate Starts for Mentos_37:

(Start: 32 @22717 has 49 MA's), (60, 22909), (70, 22981), (75, 23005), (93, 23095), (102, 23131), (104, 23149), (106, 23161),

Gene: Mila11_35 Start: 22602, Stop: 23132, Start Num: 32

Candidate Starts for Mila11_35:

(Start: 32 @22602 has 49 MA's), (60, 22794), (70, 22866), (75, 22890), (93, 22980), (102, 23016), (104, 23034), (106, 23046),

Gene: MorillMayhem_31 Start: 21628, Stop: 22158, Start Num: 32

Candidate Starts for MorillMayhem_31:

(20, 21397), (Start: 32 @21628 has 49 MA's), (53, 21769), (60, 21820), (66, 21865), (70, 21892), (75, 21916), (78, 21928), (93, 22006), (102, 22042), (104, 22060), (106, 22072), (113, 22135),

Gene: Namago_32 Start: 21197, Stop: 21727, Start Num: 32

Candidate Starts for Namago_32:

(20, 20966), (Start: 32 @21197 has 49 MA's), (60, 21389), (70, 21461), (75, 21485), (93, 21575), (102, 21611), (104, 21629), (106, 21641),

Gene: Nikan_27 Start: 18892, Stop: 19422, Start Num: 27

Candidate Starts for Nikan_27:

(Start: 27 @18892 has 1 MA's), (37, 18928), (38, 18931), (42, 18961), (51, 19024), (54, 19042), (57, 19072), (60, 19081), (62, 19087), (72, 19168), (73, 19171), (76, 19186), (91, 19264), (95, 19282), (98, 19291),

Gene: Nike_32 Start: 22149, Stop: 22679, Start Num: 32

Candidate Starts for Nike_32:

(Start: 32 @22149 has 49 MA's), (60, 22341), (70, 22413), (93, 22527), (102, 22563), (104, 22581), (106, 22593),

Gene: NyleyClemson_28 Start: 18491, Stop: 19021, Start Num: 27

Candidate Starts for NyleyClemson_28:

(Start: 27 @18491 has 1 MA's), (Start: 28 @18494 has 14 MA's), (31, 18506), (37, 18530), (38, 18533), (45, 18581), (51, 18626), (57, 18671), (62, 18686), (72, 18767), (73, 18770), (80, 18800), (91, 18863), (95, 18881), (96, 18884), (98, 18890), (100, 18902),

Gene: Odyssey395_34 Start: 19827, Stop: 20354, Start Num: 28

Candidate Starts for Odyssey395_34:

(Start: 27 @19824 has 1 MA's), (Start: 28 @19827 has 14 MA's), (31, 19839), (37, 19863), (38, 19866), (45, 19914), (51, 19959), (57, 20004), (62, 20019), (72, 20100), (73, 20103), (80, 20133), (91, 20196), (95, 20214), (96, 20217), (98, 20223), (100, 20235),

Gene: Ollypop_30 Start: 18914, Stop: 19444, Start Num: 27

Candidate Starts for Ollypop_30:

(Start: 27 @18914 has 1 MA's), (Start: 28 @18917 has 14 MA's), (37, 18950), (38, 18953), (42, 18983), (51, 19046), (54, 19064), (57, 19094), (60, 19103), (62, 19109), (72, 19190), (73, 19193), (91, 19286), (95, 19304), (98, 19313),

Gene: OneinaGillian_31 Start: 20129, Stop: 20626, Start Num: 32

Candidate Starts for OneinaGillian_31:

(20, 19901), (23, 19916), (Start: 28 @20114 has 14 MA's), (Start: 32 @20129 has 49 MA's), (44, 20201), (70, 20366), (74, 20384), (90, 20468), (93, 20480), (94, 20486), (109, 20573), (110, 20582),

Gene: Pepe25_30 Start: 20353, Stop: 20844, Start Num: 32

Candidate Starts for Pepe25_30:

(2, 19546), (6, 19693), (7, 19723), (13, 19855), (16, 20005), (20, 20128), (23, 20143), (Start: 32 @20353 has 49 MA's), (39, 20383), (70, 20584), (73, 20596), (74, 20602), (77, 20617), (90, 20686), (93, 20698), (109, 20791), (110, 20800),

Gene: Phabia_32 Start: 21531, Stop: 22061, Start Num: 32

Candidate Starts for Phabia_32:

(20, 21300), (Start: 32 @21531 has 49 MA's), (53, 21672), (60, 21723), (66, 21768), (70, 21795), (75, 21819), (78, 21831), (93, 21909), (102, 21945), (104, 21963), (106, 21975), (113, 22038),

Gene: Phinky_38 Start: 22707, Stop: 23231, Start Num: 32

Candidate Starts for Phinky_38:

(20, 22479), (Start: 32 @22707 has 49 MA's), (49, 22821), (51, 22833), (55, 22860), (66, 22944), (69, 22965), (70, 22971), (93, 23085), (95, 23094), (99, 23106), (104, 23139), (106, 23151),

Gene: PhuzzTulsa_30 Start: 19787, Stop: 20314, Start Num: 28

Candidate Starts for PhuzzTulsa_30:

(8, 19187), (21, 19580), (25, 19700), (Start: 27 @19784 has 1 MA's), (Start: 28 @19787 has 14 MA's), (31, 19799), (37, 19823), (38, 19826), (42, 19856), (45, 19874), (51, 19919), (57, 19964), (62, 19979), (67, 20027), (72, 20060), (73, 20063), (80, 20093), (91, 20156), (95, 20174), (96, 20177), (98, 20183), (100, 20195),

Gene: Pointis_32 Start: 19831, Stop: 20358, Start Num: 28

Candidate Starts for Pointis_32:

(Start: 27 @19828 has 1 MA's), (Start: 28 @19831 has 14 MA's), (31, 19843), (37, 19867), (38, 19870), (45, 19918), (51, 19963), (57, 20008), (62, 20023), (72, 20104), (73, 20107), (80, 20137), (91, 20200), (95, 20218), (96, 20221), (98, 20227), (100, 20239),

Gene: Popstraw_30 Start: 19614, Stop: 20144, Start Num: 27

Candidate Starts for Popstraw_30:

(Start: 27 @19614 has 1 MA's), (Start: 28 @19617 has 14 MA's), (31, 19629), (37, 19653), (38, 19656), (45, 19704), (51, 19749), (57, 19794), (62, 19809), (72, 19890), (73, 19893), (80, 19923), (91, 19986), (95, 20004), (96, 20007), (98, 20013), (100, 20025),

Gene: Pureglobe5_34 Start: 20014, Stop: 20541, Start Num: 28

Candidate Starts for Pureglobe5_34:

(Start: 27 @20011 has 1 MA's), (Start: 28 @20014 has 14 MA's), (31, 20026), (37, 20050), (38, 20053), (45, 20101), (51, 20146), (57, 20191), (62, 20206), (72, 20287), (73, 20290), (80, 20320), (91, 20383), (95, 20401), (96, 20404), (98, 20410), (100, 20422),

Gene: Purplicious_50 Start: 27873, Stop: 28415, Start Num: 26

Candidate Starts for Purplicious_50:

(18, 27579), (22, 27681), (25, 27795), (Start: 26 @27873 has 4 MA's), (35, 27903), (36, 27906), (48, 27993), (66, 28116), (84, 28212), (95, 28281), (103, 28323), (111, 28386),

Gene: Quammi_30 Start: 21103, Stop: 21633, Start Num: 32

Candidate Starts for Quammi_30:

(20, 20872), (Start: 32 @21103 has 49 MA's), (60, 21295), (70, 21367), (75, 21391), (93, 21481), (102, 21517), (104, 21535), (106, 21547),

Gene: RIPWilbur_30 Start: 19159, Stop: 19686, Start Num: 28

Candidate Starts for RIPWilbur_30:

(Start: 27 @19156 has 1 MA's), (Start: 28 @19159 has 14 MA's), (31, 19171), (37, 19195), (38, 19198), (45, 19246), (51, 19291), (57, 19336), (62, 19351), (72, 19432), (73, 19435), (80, 19465), (91, 19528), (95, 19546), (96, 19549), (98, 19555), (100, 19567),

Gene: Ranunculus_26 Start: 18939, Stop: 19457, Start Num: 28

Candidate Starts for Ranunculus_26:

(Start: 27 @18936 has 1 MA's), (Start: 28 @18939 has 14 MA's), (37, 18966), (42, 18999), (50, 19059), (51, 19062), (60, 19119), (72, 19203), (73, 19206), (80, 19236), (81, 19239), (91, 19299), (95, 19317), (98, 19326), (105, 19371),

Gene: RazzB_28 Start: 18313, Stop: 18840, Start Num: 28

Candidate Starts for RazzB_28:

(Start: 27 @18310 has 1 MA's), (Start: 28 @18313 has 14 MA's), (31, 18325), (37, 18349), (38, 18352), (45, 18400), (51, 18445), (57, 18490), (62, 18505), (72, 18586), (73, 18589), (80, 18619), (91, 18682), (95, 18700), (96, 18703), (98, 18709), (100, 18721),

Gene: Ren19_25 Start: 18892, Stop: 19422, Start Num: 27

Candidate Starts for Ren19_25:

(Start: 27 @18892 has 1 MA's), (37, 18928), (38, 18931), (42, 18961), (51, 19024), (54, 19042), (57, 19072), (60, 19081), (62, 19087), (72, 19168), (73, 19171), (76, 19186), (91, 19264), (95, 19282), (98, 19291),

Gene: Rizwana_26 Start: 19077, Stop: 19556, Start Num: 28

Candidate Starts for Rizwana_26:

(17, 18750), (19, 18828), (23, 18882), (Start: 28 @19077 has 14 MA's), (39, 19125), (40, 19128), (41, 19134), (52, 19197), (57, 19218), (64, 19236), (76, 19329), (80, 19344), (82, 19356), (85, 19368), (87, 19374), (109, 19506), (112, 19536), (113, 19542),

Gene: RobinRose_33 Start: 20618, Stop: 21130, Start Num: 28

Candidate Starts for RobinRose_33:

(20, 20405), (23, 20420), (Start: 28 @20618 has 14 MA's), (Start: 32 @20633 has 49 MA's), (44, 20705), (60, 20798), (70, 20870), (74, 20888), (90, 20972), (93, 20984), (94, 20990), (109, 21077), (110, 21086),

Gene: RomansRevenge_23 Start: 18318, Stop: 18812, Start Num: 33

Candidate Starts for RomansRevenge_23:

(Start: 28 @18303 has 14 MA's), (Start: 33 @18318 has 3 MA's), (38, 18339), (43, 18372), (57, 18468), (60, 18477), (70, 18552), (74, 18570), (75, 18576), (80, 18594), (81, 18597), (83, 18612), (85, 18621), (87, 18627), (95, 18678), (98, 18687), (103, 18720), (110, 18771),

Gene: Romm_33 Start: 20633, Stop: 21130, Start Num: 32

Candidate Starts for Romm_33:

(20, 20405), (23, 20420), (Start: 28 @20618 has 14 MA's), (Start: 32 @20633 has 49 MA's), (44, 20705), (60, 20798), (70, 20870), (74, 20888), (90, 20972), (93, 20984), (94, 20990), (109, 21077), (110, 21086),

Gene: Rowlf_28 Start: 21278, Stop: 21808, Start Num: 32

Candidate Starts for Rowlf_28:

(20, 21047), (Start: 32 @21278 has 49 MA's), (60, 21470), (70, 21542), (75, 21566), (93, 21656), (102, 21692), (104, 21710), (106, 21722),

Gene: RubyRalph_34 Start: 21173, Stop: 21700, Start Num: 32

Candidate Starts for RubyRalph_34:

(5, 20483), (10, 20630), (15, 20810), (20, 20945), (23, 20963), (Start: 32 @21173 has 49 MA's), (49, 21281), (52, 21299), (70, 21440), (75, 21464), (93, 21554), (95, 21563), (110, 21656),

Gene: Rudy_30 Start: 21136, Stop: 21666, Start Num: 32

Candidate Starts for Rudy_30:

(20, 20905), (Start: 32 @21136 has 49 MA's), (60, 21328), (70, 21400), (75, 21424), (93, 21514), (102, 21550), (104, 21568), (106, 21580),

Gene: SadLad_36 Start: 22116, Stop: 22643, Start Num: 32

Candidate Starts for SadLad_36:

(Start: 30 @22110 has 1 MA's), (Start: 32 @22116 has 49 MA's), (49, 22224), (52, 22242), (70, 22383), (75, 22407), (93, 22497), (95, 22506), (110, 22599),

Gene: SallyK_33 Start: 22211, Stop: 22741, Start Num: 32

Candidate Starts for SallyK_33:

(20, 21980), (Start: 32 @22211 has 49 MA's), (53, 22352), (60, 22403), (66, 22448), (70, 22475), (75, 22499), (78, 22511), (93, 22589), (102, 22625), (104, 22643), (106, 22655), (113, 22718),

Gene: SilentRX_27 Start: 20093, Stop: 20590, Start Num: 33

Candidate Starts for SilentRX_27:

(Start: 33 @20093 has 3 MA's), (60, 20255), (65, 20282), (67, 20309), (73, 20342), (75, 20354), (76, 20357), (80, 20372), (86, 20399), (88, 20420), (91, 20435), (95, 20453), (98, 20462), (110, 20540),

Gene: Sillytadpoles_32 Start: 21101, Stop: 21631, Start Num: 32

Candidate Starts for Sillytadpoles_32:

(20, 20870), (Start: 32 @21101 has 49 MA's), (53, 21242), (60, 21293), (66, 21338), (70, 21365), (75, 21389), (78, 21401), (93, 21479), (102, 21515), (104, 21533), (106, 21545), (113, 21608),

Gene: SlySloth_34 Start: 22106, Stop: 22636, Start Num: 32

Candidate Starts for SlySloth_34:

(20, 21875), (Start: 32 @22106 has 49 MA's), (53, 22247), (60, 22298), (66, 22343), (70, 22370), (75, 22394), (78, 22406), (93, 22484), (102, 22520), (104, 22538), (106, 22550), (113, 22613),

Gene: Soos_47 Start: 27834, Stop: 28376, Start Num: 26

Candidate Starts for Soos_47:

(3, 27105), (4, 27123), (9, 27252), (11, 27327), (12, 27342), (14, 27354), (18, 27540), (22, 27642), (25, 27756), (Start: 26 @27834 has 4 MA's), (35, 27864), (36, 27867), (48, 27954), (59, 28026), (66, 28077), (84, 28173), (95, 28242), (103, 28284), (111, 28347),

Gene: Squash_34 Start: 22160, Stop: 22690, Start Num: 32

Candidate Starts for Squash_34:

(Start: 32 @22160 has 49 MA's), (60, 22352), (70, 22424), (75, 22448), (93, 22538), (102, 22574), (104, 22592), (106, 22604),

Gene: Statler_33 Start: 22020, Stop: 22550, Start Num: 32

Candidate Starts for Statler_33:

(20, 21789), (Start: 32 @22020 has 49 MA's), (53, 22161), (60, 22212), (66, 22257), (70, 22284), (75, 22308), (78, 22320), (93, 22398), (102, 22434), (106, 22464), (113, 22527),

Gene: Stillion_51 Start: 28431, Stop: 28973, Start Num: 26

Candidate Starts for Stillion_51:

(25, 28353), (Start: 26 @28431 has 4 MA's), (35, 28461), (36, 28464), (48, 28551), (66, 28674), (84, 28770), (95, 28839), (103, 28881), (111, 28944),

Gene: Sting_50 Start: 28273, Stop: 28815, Start Num: 26

Candidate Starts for Sting_50:

(3, 27544), (4, 27562), (9, 27691), (11, 27766), (12, 27781), (14, 27793), (18, 27979), (22, 28081), (25, 28195), (Start: 26 @28273 has 4 MA's), (35, 28303), (36, 28306), (48, 28393), (66, 28516), (84, 28612), (95, 28681), (103, 28723), (111, 28786),

Gene: StrawberryJamm_34 Start: 21340, Stop: 21870, Start Num: 32

Candidate Starts for StrawberryJamm_34:

(20, 21109), (Start: 32 @21340 has 49 MA's), (60, 21532), (70, 21604), (75, 21628), (93, 21718), (102, 21754), (104, 21772), (106, 21784),

Gene: Tank_27 Start: 19021, Stop: 19503, Start Num: 28

Candidate Starts for Tank_27:

(17, 18694), (23, 18826), (Start: 28 @19021 has 14 MA's), (38, 19057), (40, 19072), (41, 19078), (52, 19141), (57, 19162), (62, 19177), (64, 19180), (65, 19198), (68, 19231), (76, 19276), (82, 19303), (85, 19315), (98, 19381), (108, 19444), (109, 19453), (112, 19483),

Gene: Teehee_33 Start: 22337, Stop: 22867, Start Num: 32

Candidate Starts for Teehee_33:

(20, 22106), (Start: 32 @22337 has 49 MA's), (53, 22478), (60, 22529), (66, 22574), (70, 22601), (75, 22625), (78, 22637), (93, 22715), (102, 22751), (104, 22769), (106, 22781), (113, 22844),

Gene: Tempo_31 Start: 20509, Stop: 21006, Start Num: 32

Candidate Starts for Tempo_31:

(7, 19876), (13, 20008), (20, 20281), (23, 20296), (Start: 28 @20494 has 14 MA's), (Start: 32 @20509 has 49 MA's), (44, 20581), (60, 20674), (70, 20746), (74, 20764), (90, 20848), (93, 20860), (94, 20866), (109, 20953), (110, 20962),

Gene: Tissue_32 Start: 21857, Stop: 22384, Start Num: 32

Candidate Starts for Tissue_32:

(20, 21626), (Start: 32 @21857 has 49 MA's), (60, 22046), (66, 22091), (70, 22118), (75, 22142), (93, 22232), (102, 22268), (104, 22286), (106, 22298), (113, 22361),

Gene: Tonitrus_38 Start: 26505, Stop: 27032, Start Num: 29

Candidate Starts for Tonitrus_38:

(22, 26307), (24, 26325), (25, 26421), (Start: 29 @26505 has 1 MA's), (35, 26526), (38, 26535), (39, 26547), (48, 26607), (61, 26697), (63, 26700), (71, 26772), (73, 26778), (74, 26784), (75, 26790), (79, 26805), (81, 26811), (89, 26865), (105, 26952), (108, 26973),

Gene: Viceroy_31 Start: 21103, Stop: 21633, Start Num: 32

Candidate Starts for Viceroy_31:

(20, 20872), (Start: 32 @21103 has 49 MA's), (60, 21295), (70, 21367), (75, 21391), (93, 21481), (102, 21517), (104, 21535), (106, 21547),

Gene: Wayne3_33 Start: 22100, Stop: 22630, Start Num: 32

Candidate Starts for Wayne3_33:

(20, 21869), (Start: 32 @22100 has 49 MA's), (53, 22241), (60, 22292), (66, 22337), (70, 22364), (75, 22388), (78, 22400), (93, 22478), (102, 22514), (104, 22532), (106, 22544), (113, 22607),

Gene: WheelerS25_37 Start: 22860, Stop: 23390, Start Num: 32

Candidate Starts for WheelerS25_37:

(20, 22629), (Start: 32 @22860 has 49 MA's), (53, 23001), (60, 23052), (66, 23097), (70, 23124), (75, 23148), (78, 23160), (93, 23238), (102, 23274), (104, 23292), (106, 23304), (113, 23367),

Gene: Wheelie_31 Start: 21418, Stop: 21948, Start Num: 32

Candidate Starts for Wheelie_31:

(20, 21187), (Start: 32 @21418 has 49 MA's), (53, 21559), (60, 21610), (66, 21655), (70, 21682), (75, 21706), (78, 21718), (93, 21796), (102, 21832), (104, 21850), (106, 21862), (113, 21925),

Gene: Wilca_31 Start: 20336, Stop: 20827, Start Num: 32

Candidate Starts for Wilca_31:

(1, 18518), (2, 19529), (6, 19676), (7, 19706), (13, 19838), (16, 19988), (20, 20111), (23, 20126), (Start: 32 @20336 has 49 MA's), (39, 20366), (70, 20567), (73, 20579), (74, 20585), (77, 20600), (90, 20669), (93, 20681), (109, 20774), (110, 20783),

Gene: Wilde_27 Start: 18950, Stop: 19432, Start Num: 28

Candidate Starts for Wilde_27:

(17, 18623), (23, 18755), (Start: 28 @18950 has 14 MA's), (40, 19001), (41, 19007), (52, 19070), (57, 19091), (58, 19094), (62, 19106), (64, 19109), (65, 19127), (76, 19205), (82, 19232), (85, 19244), (98, 19310), (108, 19373), (109, 19382), (112, 19412),

Gene: Zagie_32 Start: 21541, Stop: 22071, Start Num: 32

Candidate Starts for Zagie_32:

(Start: 32 @21541 has 49 MA's), (60, 21733), (70, 21805), (75, 21829), (93, 21919), (102, 21955), (104, 21973), (106, 21985),

Gene: Zhafia_34 Start: 21896, Stop: 22426, Start Num: 32

Candidate Starts for Zhafia_34:

(20, 21665), (Start: 32 @21896 has 49 MA's), (53, 22037), (60, 22088), (66, 22133), (70, 22160), (75, 22184), (78, 22196), (93, 22274), (102, 22310), (104, 22328), (106, 22340), (113, 22403),