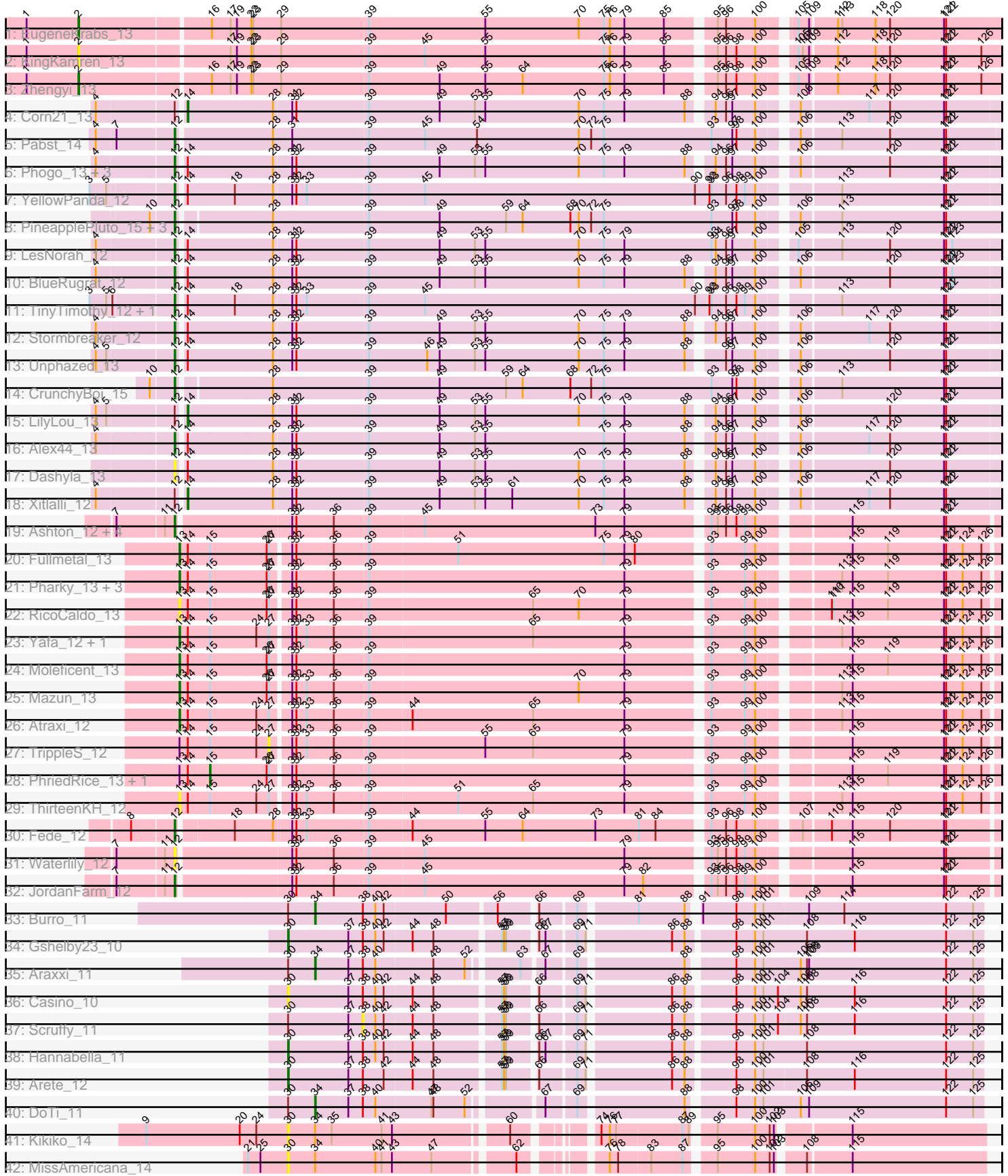


Pham 163024



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 163024 Report

This analysis was run 04/28/24 on database version 559.

Pham number 163024 has 58 members, 15 are drafts.

Phages represented in each track:

- Track 1 : EugeneKrabs_13
- Track 2 : KingKamren_13
- Track 3 : Zhengyi_13
- Track 4 : Corn21_13
- Track 5 : Pabst_14
- Track 6 : Phogo_13, DumpQuist_12, Birdfeeder_12, ArMaWen_12
- Track 7 : YellowPanda_12
- Track 8 : PineapplePluto_15, Biozilla_14, HitchHiker_15, Oatly_14
- Track 9 : LesNorah_12
- Track 10 : BlueRugrat_12
- Track 11 : TinyTimothy_12, Wesak_12
- Track 12 : Stormbreaker_12
- Track 13 : Unphazed_13
- Track 14 : CrunchyBoi_15
- Track 15 : LilyLou_13
- Track 16 : Alex44_13
- Track 17 : Dashyla_13
- Track 18 : Xitlalli_12
- Track 19 : Ashton_12, Truong_12, Akoni_12, AloeVera_12, Barroma_12
- Track 20 : Fullmetal_13
- Track 21 : Pharky_13, StagePhright_13, Phedro_13, Phracted_13
- Track 22 : RicoCaldo_13
- Track 23 : Yafa_12, Morrill_12
- Track 24 : Moleficent_13
- Track 25 : Mazun_13
- Track 26 : Atraxi_12
- Track 27 : TrippleS_12
- Track 28 : PhriedRice_13, Astartes_13
- Track 29 : ThirteenKH_12
- Track 30 : Fede_12
- Track 31 : Waterlily_12
- Track 32 : JordanFarm_12
- Track 33 : Burro_11
- Track 34 : Gshelby23_10
- Track 35 : Araxxi_11
- Track 36 : Casino_10
- Track 37 : Scruffy_11

- Track 38 : Hannabella_11
- Track 39 : Arete_12
- Track 40 : DoTi_11
- Track 41 : Kikiko_14
- Track 42 : MissAmericana_14

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 22 of the 43 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Akoni_12, Alex44_13, AloeVera_12, ArMaWen_12, Ashton_12, Barroma_12, Biozilla_14, Birdfeeder_12, BlueRugrat_12, CrunchyBoi_15, Dashyla_13, DumpQuist_12, Fede_12, HitchHiker_15, JordanFarm_12, LesNorah_12, Oatly_14, Pabst_14, Phogo_13, PineapplePluto_15, Stormbreaker_12, TinyTimothy_12, Truong_12, Unphazed_13, Waterlily_12, Wesak_12, YellowPanda_12,

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

- Corn21_13, LilyLou_13, Xitlalli_12,

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

- Araxxi_11, Arete_12, Astartes_13, Atraxi_12, Burro_11, Casino_10, DoTi_11, EugeneKrabs_13, Fullmetal_13, Gshelby23_10, Hannabella_11, Kikiko_14, KingKamren_13, Mazun_13, MissAmericana_14, Moleficent_13, Morrill_12, Pharky_13, Phedro_13, Phracted_13, PhriedRice_13, RicoCaldo_13, Scruffy_11, StagePhright_13, ThirteenKH_12, TrippleS_12, Yafa_12, Zhengyi_13,

Summary by start number:

Start 2:

- Found in 3 of 58 (5.2%) of genes in pham
- Manual Annotations of this start: 2 of 43
- Called 100.0% of time when present
- Phage (with cluster) where this start called: EugeneKrabs_13 (EK), KingKamren_13 (EK), Zhengyi_13 (EK),

Start 12:

- Found in 30 of 58 (51.7%) of genes in pham
- Manual Annotations of this start: 22 of 43
- Called 90.0% of time when present
- Phage (with cluster) where this start called: Akoni_12 (EK2), Alex44_13 (EK1), AloeVera_12 (EK2), ArMaWen_12 (EK1), Ashton_12 (EK2), Barroma_12 (EK2), Biozilla_14 (EK1), Birdfeeder_12 (EK1), BlueRugrat_12 (EK1), CrunchyBoi_15 (EK1), Dashyla_13 (EK1), DumpQuist_12 (EK1), Fede_12 (EK2), HitchHiker_15 (EK1), JordanFarm_12 (EK2), LesNorah_12 (EK1), Oatly_14 (EK1), Pabst_14 (EK1), Phogo_13 (EK1), PineapplePluto_15 (EK1), Stormbreaker_12 (EK1), TinyTimothy_12 (EK1), Truong_12 (EK2), Unphazed_13 (EK1), Waterlily_12 (EK2), Wesak_12 (EK1), YellowPanda_12 (EK1),

Start 13:

- Found in 15 of 58 (25.9%) of genes in pham
- Manual Annotations of this start: 9 of 43
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Atraxi_12 (EK2), Fullmetal_13 (EK2), Mazun_13 (EK2), Moleficent_13 (EK2), Morrill_12 (EK2), Pharky_13 (EK2), Phedro_13 (EK2), Phracted_13 (EK2), RicoCaldo_13 (EK2), StagePhright_13 (EK2), ThirteenKH_12 (EK2), Yafa_12 (EK2),

Start 14:

- Found in 31 of 58 (53.4%) of genes in pham
- Manual Annotations of this start: 3 of 43
- Called 9.7% of time when present
- Phage (with cluster) where this start called: Corn21_13 (EK1), LilyLou_13 (EK1), Xitlalli_12 (EK1),

Start 15:

- Found in 15 of 58 (25.9%) of genes in pham
- Manual Annotations of this start: 1 of 43
- Called 13.3% of time when present
- Phage (with cluster) where this start called: Astartes_13 (EK2), PhriedRice_13 (EK2),

Start 27:

- Found in 15 of 58 (25.9%) of genes in pham
- No Manual Annotations of this start.
- Called 6.7% of time when present
- Phage (with cluster) where this start called: TrippleS_12 (EK2),

Start 30:

- Found in 10 of 58 (17.2%) of genes in pham
- Manual Annotations of this start: 3 of 43
- Called 60.0% of time when present
- Phage (with cluster) where this start called: Arete_12 (EM1), Casino_10 (EM1), Gshelby23_10 (EM1), Hannabella_11 (EM1), Kikiko_14 (EM2), MissAmericana_14 (EM2),

Start 34:

- Found in 5 of 58 (8.6%) of genes in pham
- Manual Annotations of this start: 3 of 43
- Called 60.0% of time when present
- Phage (with cluster) where this start called: Araxxi_11 (EM1), Burro_11 (EM1), DoTi_11 (EM1),

Start 38:

- Found in 8 of 58 (13.8%) of genes in pham
- No Manual Annotations of this start.
- Called 12.5% of time when present
- Phage (with cluster) where this start called: Scruffy_11 (EM1),

Summary by clusters:

There are 5 clusters represented in this pham: EM1, EK1, EK2, EK, EM2,

Info for manual annotations of cluster EK:

- Start number 2 was manually annotated 2 times for cluster EK.

Info for manual annotations of cluster EK1:

- Start number 12 was manually annotated 16 times for cluster EK1.
- Start number 14 was manually annotated 3 times for cluster EK1.

Info for manual annotations of cluster EK2:

- Start number 12 was manually annotated 6 times for cluster EK2.
- Start number 13 was manually annotated 9 times for cluster EK2.
- Start number 15 was manually annotated 1 time for cluster EK2.

Info for manual annotations of cluster EM1:

- Start number 30 was manually annotated 3 times for cluster EM1.
- Start number 34 was manually annotated 3 times for cluster EM1.

Gene Information:

Gene: Akoni_12 Start: 9909, Stop: 8791, Start Num: 12

Candidate Starts for Akoni_12:

(7, 9984), (11, 9921), (Start: 12 @9909 has 22 MA's), (31, 9756), (32, 9750), (36, 9696), (39, 9648), (45, 9570), (73, 9324), (79, 9282), (93, 9174), (95, 9165), (96, 9153), (98, 9138), (99, 9126), (100, 9111), (115, 8997), (121, 8865), (122, 8862),

Gene: Alex44_13 Start: 10186, Stop: 9059, Start Num: 12

Candidate Starts for Alex44_13:

(4, 10288), (Start: 12 @10186 has 22 MA's), (Start: 14 @10177 has 3 MA's), (28, 10057), (31, 10033), (32, 10027), (39, 9925), (49, 9823), (53, 9772), (55, 9757), (75, 9586), (79, 9556), (88, 9469), (94, 9442), (96, 9427), (97, 9418), (100, 9385), (106, 9340), (117, 9247), (120, 9217), (121, 9139), (122, 9136),

Gene: AloeVera_12 Start: 9909, Stop: 8791, Start Num: 12

Candidate Starts for AloeVera_12:

(7, 9984), (11, 9921), (Start: 12 @9909 has 22 MA's), (31, 9756), (32, 9750), (36, 9696), (39, 9648), (45, 9570), (73, 9324), (79, 9282), (93, 9174), (95, 9165), (96, 9153), (98, 9138), (99, 9126), (100, 9111), (115, 8997), (121, 8865), (122, 8862),

Gene: ArMaWen_12 Start: 9986, Stop: 8859, Start Num: 12

Candidate Starts for ArMaWen_12:

(4, 10088), (Start: 12 @9986 has 22 MA's), (Start: 14 @9977 has 3 MA's), (28, 9857), (31, 9833), (32, 9827), (39, 9725), (49, 9623), (53, 9572), (55, 9557), (70, 9422), (75, 9386), (79, 9356), (88, 9269), (94, 9242), (96, 9227), (97, 9218), (100, 9185), (106, 9140), (120, 9017), (121, 8939), (122, 8936),

Gene: Araxxi_11 Start: 9119, Stop: 8229, Start Num: 34

Candidate Starts for Araxxi_11:

(Start: 30 @9158 has 3 MA's), (Start: 34 @9119 has 3 MA's), (37, 9071), (38, 9050), (40, 9032), (48, 8954), (52, 8909), (63, 8846), (67, 8819), (69, 8780), (88, 8639), (98, 8582), (100, 8555), (101, 8543), (106, 8492), (108, 8483), (109, 8480), (122, 8282), (125, 8243),

Gene: Arete_12 Start: 9062, Stop: 8124, Start Num: 30

Candidate Starts for Arete_12:

(Start: 30 @9062 has 3 MA's), (37, 8975), (38, 8954), (42, 8924), (44, 8888), (48, 8858), (57, 8771), (58, 8768), (59, 8765), (66, 8729), (69, 8681), (71, 8669), (86, 8558), (88, 8540), (98, 8477), (100, 8450), (101, 8438), (108, 8378), (116, 8309), (122, 8177), (125, 8138),

Gene: Ashton_12 Start: 9913, Stop: 8795, Start Num: 12

Candidate Starts for Ashton_12:

(7, 9988), (11, 9925), (Start: 12 @9913 has 22 MA's), (31, 9760), (32, 9754), (36, 9700), (39, 9652), (45, 9574), (73, 9328), (79, 9286), (93, 9178), (95, 9169), (96, 9157), (98, 9142), (99, 9130), (100, 9115), (115, 9001), (121, 8869), (122, 8866),

Gene: Astartes_13 Start: 10105, Stop: 9032, Start Num: 15

Candidate Starts for Astartes_13:

(Start: 13 @10147 has 9 MA's), (Start: 14 @10135 has 3 MA's), (Start: 15 @10105 has 1 MA's), (26, 10024), (27, 10021), (31, 9997), (32, 9991), (36, 9937), (39, 9889), (79, 9523), (93, 9415), (99, 9367), (100, 9352), (115, 9238), (119, 9187), (121, 9106), (122, 9103), (124, 9079), (126, 9052),

Gene: Atraxi_12 Start: 9905, Stop: 8790, Start Num: 13

Candidate Starts for Atraxi_12:

(Start: 13 @9905 has 9 MA's), (Start: 14 @9893 has 3 MA's), (Start: 15 @9863 has 1 MA's), (24, 9797), (27, 9779), (31, 9755), (32, 9749), (33, 9734), (36, 9695), (39, 9647), (44, 9587), (65, 9413), (79, 9281), (93, 9173), (99, 9125), (100, 9110), (113, 9011), (115, 8996), (121, 8864), (122, 8861), (124, 8837), (126, 8810),

Gene: Barroma_12 Start: 9909, Stop: 8791, Start Num: 12

Candidate Starts for Barroma_12:

(7, 9984), (11, 9921), (Start: 12 @9909 has 22 MA's), (31, 9756), (32, 9750), (36, 9696), (39, 9648), (45, 9570), (73, 9324), (79, 9282), (93, 9174), (95, 9165), (96, 9153), (98, 9138), (99, 9126), (100, 9111), (115, 8997), (121, 8865), (122, 8862),

Gene: Biozilla_14 Start: 10458, Stop: 9313, Start Num: 12

Candidate Starts for Biozilla_14:

(10, 10488), (Start: 12 @10458 has 22 MA's), (28, 10335), (39, 10200), (49, 10098), (59, 10002), (64, 9978), (68, 9909), (70, 9897), (72, 9879), (75, 9861), (93, 9705), (97, 9675), (98, 9669), (100, 9642), (106, 9597), (113, 9543), (121, 9396), (122, 9393),

Gene: Birdfeeder_12 Start: 10346, Stop: 9219, Start Num: 12

Candidate Starts for Birdfeeder_12:

(4, 10448), (Start: 12 @10346 has 22 MA's), (Start: 14 @10337 has 3 MA's), (28, 10217), (31, 10193), (32, 10187), (39, 10085), (49, 9983), (53, 9932), (55, 9917), (70, 9782), (75, 9746), (79, 9716), (88, 9629), (94, 9602), (96, 9587), (97, 9578), (100, 9545), (106, 9500), (120, 9377), (121, 9299), (122, 9296),

Gene: BlueRugrat_12 Start: 10420, Stop: 9293, Start Num: 12

Candidate Starts for BlueRugrat_12:

(4, 10522), (Start: 12 @10420 has 22 MA's), (Start: 14 @10411 has 3 MA's), (28, 10291), (31, 10267), (32, 10261), (39, 10159), (49, 10057), (53, 10006), (55, 9991), (70, 9856), (75, 9820), (79, 9790), (88, 9703), (94, 9676), (96, 9661), (97, 9652), (100, 9619), (106, 9574), (120, 9451), (121, 9373), (122, 9370), (123, 9361),

Gene: Burro_11 Start: 8812, Stop: 7916, Start Num: 34

Candidate Starts for Burro_11:

(Start: 30 @8851 has 3 MA's), (Start: 34 @8812 has 3 MA's), (38, 8743), (40, 8725), (42, 8713), (50, 8629), (56, 8563), (66, 8515), (69, 8467), (81, 8392), (88, 8326), (91, 8317), (98, 8269), (100, 8242), (101, 8230), (109, 8167), (114, 8116), (122, 7969), (125, 7930),

Gene: Casino_10 Start: 8891, Stop: 7953, Start Num: 30

Candidate Starts for Casino_10:

(Start: 30 @8891 has 3 MA's), (37, 8804), (38, 8783), (40, 8765), (42, 8753), (44, 8717), (48, 8687), (57, 8600), (58, 8597), (59, 8594), (66, 8558), (69, 8510), (71, 8498), (86, 8387), (88, 8369), (98, 8306), (100, 8279), (101, 8267), (104, 8246), (106, 8216), (108, 8207), (116, 8138), (122, 8006), (125, 7967),

Gene: Corn21_13 Start: 10714, Stop: 9596, Start Num: 14

Candidate Starts for Corn21_13:

(4, 10825), (Start: 12 @10723 has 22 MA's), (Start: 14 @10714 has 3 MA's), (28, 10594), (31, 10570), (32, 10564), (39, 10462), (49, 10360), (53, 10309), (55, 10294), (70, 10159), (75, 10123), (79, 10093), (88, 10006), (94, 9979), (96, 9964), (97, 9955), (100, 9922), (106, 9877), (117, 9784), (120, 9754), (121, 9676), (122, 9673),

Gene: CrunchyBoi_15 Start: 10593, Stop: 9448, Start Num: 12

Candidate Starts for CrunchyBoi_15:

(10, 10623), (Start: 12 @10593 has 22 MA's), (28, 10470), (39, 10335), (49, 10233), (59, 10137), (64, 10113), (68, 10044), (72, 10014), (75, 9996), (93, 9840), (97, 9810), (98, 9804), (100, 9777), (106, 9732), (113, 9678), (121, 9531), (122, 9528),

Gene: Dashyla_13 Start: 9992, Stop: 8865, Start Num: 12

Candidate Starts for Dashyla_13:

(Start: 12 @9992 has 22 MA's), (Start: 14 @9983 has 3 MA's), (28, 9863), (31, 9839), (32, 9833), (39, 9731), (49, 9629), (53, 9578), (55, 9563), (70, 9428), (75, 9392), (79, 9362), (88, 9275), (94, 9248), (96, 9233), (97, 9224), (100, 9191), (106, 9146), (120, 9023), (121, 8945), (122, 8942),

Gene: DoTi_11 Start: 9101, Stop: 8211, Start Num: 34

Candidate Starts for DoTi_11:

(Start: 30 @9140 has 3 MA's), (Start: 34 @9101 has 3 MA's), (37, 9053), (38, 9032), (40, 9014), (47, 8939), (48, 8936), (52, 8891), (67, 8801), (69, 8762), (88, 8621), (98, 8564), (100, 8537), (101, 8525), (106, 8474), (109, 8462), (122, 8264), (125, 8225),

Gene: DumpQuist_12 Start: 9989, Stop: 8862, Start Num: 12

Candidate Starts for DumpQuist_12:

(4, 10091), (Start: 12 @9989 has 22 MA's), (Start: 14 @9980 has 3 MA's), (28, 9860), (31, 9836), (32, 9830), (39, 9728), (49, 9626), (53, 9575), (55, 9560), (70, 9425), (75, 9389), (79, 9359), (88, 9272), (94, 9245), (96, 9230), (97, 9221), (100, 9188), (106, 9143), (120, 9020), (121, 8942), (122, 8939),

Gene: EugeneKrabs_13 Start: 10338, Stop: 9070, Start Num: 2

Candidate Starts for EugeneKrabs_13:

(1, 10413), (Start: 2 @10338 has 2 MA's), (16, 10158), (17, 10131), (19, 10122), (22, 10101), (23, 10098), (29, 10059), (39, 9936), (55, 9768), (70, 9633), (75, 9597), (76, 9588), (79, 9567), (85, 9510), (95, 9450), (96, 9438), (100, 9396), (105, 9357), (109, 9342), (112, 9306), (113, 9300), (118, 9252), (120, 9231), (121, 9153), (122, 9150),

Gene: Fede_12 Start: 10179, Stop: 9067, Start Num: 12

Candidate Starts for Fede_12:

(8, 10233), (Start: 12 @10179 has 22 MA's), (18, 10107), (28, 10053), (31, 10032), (32, 10026), (33, 10011), (39, 9924), (44, 9864), (55, 9759), (64, 9705), (73, 9600), (81, 9537), (84, 9513), (93, 9450),

(96, 9429), (98, 9414), (100, 9387), (107, 9339), (110, 9303), (115, 9273), (120, 9219), (121, 9141), (122, 9138),

Gene: Fullmetal_13 Start: 10144, Stop: 9029, Start Num: 13

Candidate Starts for Fullmetal_13:

(Start: 13 @10144 has 9 MA's), (Start: 14 @10132 has 3 MA's), (Start: 15 @10102 has 1 MA's), (26, 10021), (27, 10018), (31, 9994), (32, 9988), (36, 9934), (39, 9886), (51, 9760), (75, 9550), (79, 9520), (80, 9505), (93, 9412), (99, 9364), (100, 9349), (115, 9235), (119, 9184), (121, 9103), (122, 9100), (124, 9076), (126, 9049),

Gene: Gshelby23_10 Start: 9008, Stop: 8067, Start Num: 30

Candidate Starts for Gshelby23_10:

(Start: 30 @9008 has 3 MA's), (37, 8921), (38, 8900), (40, 8882), (42, 8870), (44, 8834), (48, 8804), (57, 8717), (58, 8714), (59, 8711), (66, 8675), (67, 8666), (69, 8627), (71, 8615), (86, 8504), (88, 8486), (98, 8423), (100, 8396), (101, 8384), (108, 8321), (116, 8252), (122, 8120), (125, 8081),

Gene: Hannabella_11 Start: 8888, Stop: 7947, Start Num: 30

Candidate Starts for Hannabella_11:

(Start: 30 @8888 has 3 MA's), (37, 8801), (38, 8780), (40, 8762), (42, 8750), (44, 8714), (48, 8684), (57, 8597), (58, 8594), (59, 8591), (66, 8555), (67, 8546), (69, 8507), (71, 8495), (86, 8384), (88, 8366), (98, 8303), (100, 8276), (101, 8264), (108, 8201), (122, 8000), (125, 7961),

Gene: HitchHiker_15 Start: 10458, Stop: 9313, Start Num: 12

Candidate Starts for HitchHiker_15:

(10, 10488), (Start: 12 @10458 has 22 MA's), (28, 10335), (39, 10200), (49, 10098), (59, 10002), (64, 9978), (68, 9909), (70, 9897), (72, 9879), (75, 9861), (93, 9705), (97, 9675), (98, 9669), (100, 9642), (106, 9597), (113, 9543), (121, 9396), (122, 9393),

Gene: JordanFarm_12 Start: 9909, Stop: 8791, Start Num: 12

Candidate Starts for JordanFarm_12:

(7, 9984), (11, 9921), (Start: 12 @9909 has 22 MA's), (31, 9756), (32, 9750), (36, 9696), (39, 9648), (45, 9570), (79, 9282), (82, 9255), (93, 9174), (95, 9165), (96, 9153), (98, 9138), (99, 9126), (100, 9111), (115, 8997), (121, 8865), (122, 8862),

Gene: Kikiko_14 Start: 10158, Stop: 9262, Start Num: 30

Candidate Starts for Kikiko_14:

(9, 10362), (20, 10227), (24, 10203), (Start: 30 @10158 has 3 MA's), (Start: 34 @10119 has 3 MA's), (35, 10095), (41, 10023), (43, 10008), (60, 9861), (74, 9774), (76, 9762), (77, 9753), (87, 9660), (89, 9651), (95, 9627), (100, 9573), (102, 9552), (103, 9546), (115, 9453),

Gene: KingKamren_13 Start: 10353, Stop: 9085, Start Num: 2

Candidate Starts for KingKamren_13:

(1, 10428), (Start: 2 @10353 has 2 MA's), (17, 10146), (19, 10137), (22, 10116), (23, 10113), (29, 10074), (39, 9951), (45, 9870), (55, 9783), (75, 9612), (76, 9603), (79, 9582), (85, 9525), (95, 9465), (96, 9453), (98, 9438), (100, 9411), (105, 9372), (107, 9366), (109, 9357), (112, 9321), (118, 9267), (120, 9246), (121, 9168), (122, 9165), (126, 9114),

Gene: LesNorah_12 Start: 10513, Stop: 9368, Start Num: 12

Candidate Starts for LesNorah_12:

(4, 10615), (Start: 12 @10513 has 22 MA's), (Start: 14 @10504 has 3 MA's), (28, 10384), (31, 10360), (32, 10354), (39, 10252), (49, 10150), (53, 10099), (55, 10084), (70, 9949), (75, 9913), (79, 9883), (93, 9757), (94, 9751), (96, 9736), (97, 9727), (100, 9694), (105, 9652), (113, 9595), (120, 9526), (121, 9448), (122, 9445), (123, 9436),

Gene: LilyLou_13 Start: 10354, Stop: 9236, Start Num: 14

Candidate Starts for LilyLou_13:

(4, 10465), (5, 10450), (Start: 12 @10363 has 22 MA's), (Start: 14 @10354 has 3 MA's), (28, 10234), (31, 10210), (32, 10204), (39, 10102), (49, 10000), (53, 9949), (55, 9934), (70, 9799), (75, 9763), (79, 9733), (88, 9646), (94, 9619), (96, 9604), (97, 9595), (100, 9562), (106, 9517), (120, 9394), (121, 9316), (122, 9313),

Gene: Mazun_13 Start: 10145, Stop: 9030, Start Num: 13

Candidate Starts for Mazun_13:

(Start: 13 @10145 has 9 MA's), (Start: 14 @10133 has 3 MA's), (Start: 15 @10103 has 1 MA's), (26, 10022), (27, 10019), (31, 9995), (32, 9989), (33, 9974), (36, 9935), (39, 9887), (70, 9587), (79, 9521), (93, 9413), (99, 9365), (100, 9350), (113, 9251), (115, 9236), (121, 9104), (122, 9101), (124, 9077), (126, 9050),

Gene: MissAmericana_14 Start: 9931, Stop: 9035, Start Num: 30

Candidate Starts for MissAmericana_14:

(21, 9988), (25, 9970), (Start: 30 @9931 has 3 MA's), (Start: 34 @9892 has 3 MA's), (40, 9805), (41, 9796), (43, 9781), (47, 9727), (62, 9625), (76, 9535), (78, 9523), (83, 9478), (87, 9433), (95, 9400), (100, 9346), (102, 9325), (103, 9319), (108, 9286), (115, 9226),

Gene: Moleficient_13 Start: 10141, Stop: 9026, Start Num: 13

Candidate Starts for Moleficient_13:

(Start: 13 @10141 has 9 MA's), (Start: 14 @10129 has 3 MA's), (Start: 15 @10099 has 1 MA's), (26, 10018), (27, 10015), (31, 9991), (32, 9985), (36, 9931), (39, 9883), (79, 9517), (93, 9409), (99, 9361), (100, 9346), (115, 9232), (119, 9181), (121, 9100), (122, 9097), (124, 9073), (126, 9046),

Gene: Morrill_12 Start: 9883, Stop: 8768, Start Num: 13

Candidate Starts for Morrill_12:

(Start: 13 @9883 has 9 MA's), (Start: 14 @9871 has 3 MA's), (Start: 15 @9841 has 1 MA's), (24, 9775), (27, 9757), (31, 9733), (32, 9727), (33, 9712), (36, 9673), (39, 9625), (65, 9391), (79, 9259), (93, 9151), (99, 9103), (100, 9088), (113, 8989), (115, 8974), (121, 8842), (122, 8839), (124, 8815), (126, 8788),

Gene: Oatly_14 Start: 10458, Stop: 9313, Start Num: 12

Candidate Starts for Oatly_14:

(10, 10488), (Start: 12 @10458 has 22 MA's), (28, 10335), (39, 10200), (49, 10098), (59, 10002), (64, 9978), (68, 9909), (70, 9897), (72, 9879), (75, 9861), (93, 9705), (97, 9675), (98, 9669), (100, 9642), (106, 9597), (113, 9543), (121, 9396), (122, 9393),

Gene: Pabst_14 Start: 10327, Stop: 9179, Start Num: 12

Candidate Starts for Pabst_14:

(4, 10426), (7, 10402), (Start: 12 @10327 has 22 MA's), (28, 10198), (31, 10171), (39, 10063), (45, 9982), (54, 9907), (70, 9760), (72, 9742), (75, 9724), (93, 9568), (97, 9538), (98, 9532), (100, 9505), (106, 9460), (113, 9406), (120, 9337), (121, 9259), (122, 9256),

Gene: Pharky_13 Start: 10108, Stop: 8993, Start Num: 13

Candidate Starts for Pharky_13:

(Start: 13 @10108 has 9 MA's), (Start: 14 @10096 has 3 MA's), (Start: 15 @10066 has 1 MA's), (26, 9985), (27, 9982), (31, 9958), (32, 9952), (36, 9898), (39, 9850), (79, 9484), (93, 9376), (99, 9328), (100, 9313), (113, 9214), (115, 9199), (119, 9148), (121, 9067), (122, 9064), (124, 9040), (126, 9013),

Gene: Phedro_13 Start: 10108, Stop: 8993, Start Num: 13

Candidate Starts for Phedro_13:

(Start: 13 @10108 has 9 MA's), (Start: 14 @10096 has 3 MA's), (Start: 15 @10066 has 1 MA's), (26, 9985), (27, 9982), (31, 9958), (32, 9952), (36, 9898), (39, 9850), (79, 9484), (93, 9376), (99, 9328), (100, 9313), (113, 9214), (115, 9199), (119, 9148), (121, 9067), (122, 9064), (124, 9040), (126, 9013),

Gene: Phogo_13 Start: 10195, Stop: 9068, Start Num: 12

Candidate Starts for Phogo_13:

(4, 10297), (Start: 12 @10195 has 22 MA's), (Start: 14 @10186 has 3 MA's), (28, 10066), (31, 10042), (32, 10036), (39, 9934), (49, 9832), (53, 9781), (55, 9766), (70, 9631), (75, 9595), (79, 9565), (88, 9478), (94, 9451), (96, 9436), (97, 9427), (100, 9394), (106, 9349), (120, 9226), (121, 9148), (122, 9145),

Gene: Phractured_13 Start: 10108, Stop: 8993, Start Num: 13

Candidate Starts for Phractured_13:

(Start: 13 @10108 has 9 MA's), (Start: 14 @10096 has 3 MA's), (Start: 15 @10066 has 1 MA's), (26, 9985), (27, 9982), (31, 9958), (32, 9952), (36, 9898), (39, 9850), (79, 9484), (93, 9376), (99, 9328), (100, 9313), (113, 9214), (115, 9199), (119, 9148), (121, 9067), (122, 9064), (124, 9040), (126, 9013),

Gene: PhriedRice_13 Start: 10066, Stop: 8993, Start Num: 15

Candidate Starts for PhriedRice_13:

(Start: 13 @10108 has 9 MA's), (Start: 14 @10096 has 3 MA's), (Start: 15 @10066 has 1 MA's), (26, 9985), (27, 9982), (31, 9958), (32, 9952), (36, 9898), (39, 9850), (79, 9484), (93, 9376), (99, 9328), (100, 9313), (115, 9199), (119, 9148), (121, 9067), (122, 9064), (124, 9040), (126, 9013),

Gene: PineapplePluto_15 Start: 10602, Stop: 9457, Start Num: 12

Candidate Starts for PineapplePluto_15:

(10, 10632), (Start: 12 @10602 has 22 MA's), (28, 10479), (39, 10344), (49, 10242), (59, 10146), (64, 10122), (68, 10053), (70, 10041), (72, 10023), (75, 10005), (93, 9849), (97, 9819), (98, 9813), (100, 9786), (106, 9741), (113, 9687), (121, 9540), (122, 9537),

Gene: RicoCaldo_13 Start: 10136, Stop: 9021, Start Num: 13

Candidate Starts for RicoCaldo_13:

(Start: 13 @10136 has 9 MA's), (Start: 14 @10124 has 3 MA's), (Start: 15 @10094 has 1 MA's), (26, 10013), (27, 10010), (31, 9986), (32, 9980), (36, 9926), (39, 9878), (65, 9644), (70, 9578), (79, 9512), (93, 9404), (99, 9356), (100, 9341), (110, 9257), (111, 9254), (115, 9227), (119, 9176), (121, 9095), (122, 9092), (124, 9068), (126, 9041),

Gene: Scruffy_11 Start: 9179, Stop: 8349, Start Num: 38

Candidate Starts for Scruffy_11:

(Start: 30 @9287 has 3 MA's), (37, 9200), (38, 9179), (40, 9161), (42, 9149), (44, 9113), (48, 9083), (57, 8996), (58, 8993), (59, 8990), (66, 8954), (69, 8906), (71, 8894), (86, 8783), (88, 8765), (98, 8702), (100, 8675), (101, 8663), (104, 8642), (106, 8612), (108, 8603), (116, 8534), (122, 8402), (125, 8363),

Gene: StagePhright_13 Start: 10108, Stop: 8993, Start Num: 13

Candidate Starts for StagePhright_13:

(Start: 13 @10108 has 9 MA's), (Start: 14 @10096 has 3 MA's), (Start: 15 @10066 has 1 MA's), (26, 9985), (27, 9982), (31, 9958), (32, 9952), (36, 9898), (39, 9850), (79, 9484), (93, 9376), (99, 9328), (100, 9313), (113, 9214), (115, 9199), (119, 9148), (121, 9067), (122, 9064), (124, 9040), (126, 9013),

Gene: Stormbreaker_12 Start: 10325, Stop: 9198, Start Num: 12

Candidate Starts for Stormbreaker_12:

(4, 10427), (Start: 12 @10325 has 22 MA's), (Start: 14 @10316 has 3 MA's), (28, 10196), (31, 10172), (32, 10166), (39, 10064), (49, 9962), (53, 9911), (55, 9896), (70, 9761), (75, 9725), (79, 9695), (88, 9608), (94, 9581), (96, 9566), (97, 9557), (100, 9524), (106, 9479), (117, 9386), (120, 9356), (121, 9278), (122, 9275),

Gene: ThirteenKH_12 Start: 9883, Stop: 8768, Start Num: 13

Candidate Starts for ThirteenKH_12:

(Start: 13 @9883 has 9 MA's), (Start: 14 @9871 has 3 MA's), (Start: 15 @9841 has 1 MA's), (24, 9775), (27, 9757), (31, 9733), (32, 9727), (33, 9712), (36, 9673), (39, 9625), (51, 9499), (65, 9391), (79, 9259), (93, 9151), (99, 9103), (100, 9088), (113, 8989), (115, 8974), (121, 8842), (122, 8839), (124, 8815), (126, 8788),

Gene: TinyTimothy_12 Start: 9805, Stop: 8660, Start Num: 12

Candidate Starts for TinyTimothy_12:

(3, 9913), (5, 9889), (6, 9883), (Start: 12 @9805 has 22 MA's), (Start: 14 @9796 has 3 MA's), (18, 9730), (28, 9676), (31, 9652), (32, 9646), (33, 9631), (39, 9544), (45, 9463), (90, 9073), (92, 9052), (93, 9049), (96, 9028), (98, 9013), (99, 9001), (100, 8986), (113, 8887), (121, 8740), (122, 8737),

Gene: TrippleS_12 Start: 9763, Stop: 8774, Start Num: 27

Candidate Starts for TrippleS_12:

(Start: 13 @9889 has 9 MA's), (Start: 14 @9877 has 3 MA's), (Start: 15 @9847 has 1 MA's), (24, 9781), (27, 9763), (31, 9739), (32, 9733), (33, 9718), (36, 9679), (39, 9631), (55, 9466), (65, 9397), (79, 9265), (93, 9157), (99, 9109), (100, 9094), (115, 8980), (121, 8848), (122, 8845), (124, 8821), (126, 8794),

Gene: Truong_12 Start: 9909, Stop: 8791, Start Num: 12

Candidate Starts for Truong_12:

(7, 9984), (11, 9921), (Start: 12 @9909 has 22 MA's), (31, 9756), (32, 9750), (36, 9696), (39, 9648), (45, 9570), (73, 9324), (79, 9282), (93, 9174), (95, 9165), (96, 9153), (98, 9138), (99, 9126), (100, 9111), (115, 8997), (121, 8865), (122, 8862),

Gene: Unphazed_13 Start: 10222, Stop: 9095, Start Num: 12

Candidate Starts for Unphazed_13:

(4, 10324), (5, 10309), (Start: 12 @10222 has 22 MA's), (Start: 14 @10213 has 3 MA's), (28, 10093), (31, 10069), (32, 10063), (39, 9961), (46, 9877), (49, 9859), (53, 9808), (55, 9793), (70, 9658), (75, 9622), (79, 9592), (88, 9505), (96, 9463), (97, 9454), (100, 9421), (106, 9376), (120, 9253), (121, 9175), (122, 9172),

Gene: Waterlily_12 Start: 9909, Stop: 8791, Start Num: 12

Candidate Starts for Waterlily_12:

(7, 9984), (11, 9921), (Start: 12 @9909 has 22 MA's), (31, 9756), (32, 9750), (36, 9696), (39, 9648), (45, 9570), (79, 9282), (93, 9174), (95, 9165), (96, 9153), (98, 9138), (99, 9126), (100, 9111), (115, 8997), (121, 8865), (122, 8862),

Gene: Wesak_12 Start: 9805, Stop: 8660, Start Num: 12

Candidate Starts for Wesak_12:

(3, 9913), (5, 9889), (6, 9883), (Start: 12 @9805 has 22 MA's), (Start: 14 @9796 has 3 MA's), (18, 9730), (28, 9676), (31, 9652), (32, 9646), (33, 9631), (39, 9544), (45, 9463), (90, 9073), (92, 9052), (93, 9049), (96, 9028), (98, 9013), (99, 9001), (100, 8986), (113, 8887), (121, 8740), (122, 8737),

Gene: Xitlalli_12 Start: 10319, Stop: 9201, Start Num: 14

Candidate Starts for Xitlalli_12:

(4, 10430), (Start: 12 @10328 has 22 MA's), (Start: 14 @10319 has 3 MA's), (28, 10199), (31, 10175), (32, 10169), (39, 10067), (49, 9965), (53, 9914), (55, 9899), (61, 9860), (70, 9764), (75, 9728), (79, 9698), (88, 9611), (94, 9584), (96, 9569), (97, 9560), (100, 9527), (106, 9482), (117, 9389), (120, 9359), (121, 9281), (122, 9278),

Gene: Yafa_12 Start: 9906, Stop: 8791, Start Num: 13

Candidate Starts for Yafa_12:

(Start: 13 @9906 has 9 MA's), (Start: 14 @9894 has 3 MA's), (Start: 15 @9864 has 1 MA's), (24, 9798), (27, 9780), (31, 9756), (32, 9750), (33, 9735), (36, 9696), (39, 9648), (65, 9414), (79, 9282), (93, 9174), (99, 9126), (100, 9111), (113, 9012), (115, 8997), (121, 8865), (122, 8862), (124, 8838), (126, 8811),

Gene: YellowPanda_12 Start: 9805, Stop: 8660, Start Num: 12

Candidate Starts for YellowPanda_12:

(3, 9913), (5, 9889), (Start: 12 @9805 has 22 MA's), (Start: 14 @9796 has 3 MA's), (18, 9730), (28, 9676), (31, 9652), (32, 9646), (33, 9631), (39, 9544), (45, 9463), (90, 9073), (92, 9052), (93, 9049), (96, 9028), (98, 9013), (99, 9001), (100, 8986), (113, 8887), (121, 8740), (122, 8737),

Gene: Zhengyi_13 Start: 10356, Stop: 9088, Start Num: 2

Candidate Starts for Zhengyi_13:

(1, 10431), (Start: 2 @10356 has 2 MA's), (16, 10176), (17, 10149), (19, 10140), (22, 10119), (23, 10116), (29, 10077), (39, 9954), (49, 9852), (55, 9786), (64, 9732), (75, 9615), (76, 9606), (79, 9585), (85, 9528), (95, 9468), (96, 9456), (98, 9441), (100, 9414), (105, 9375), (109, 9360), (112, 9324), (118, 9270), (120, 9249), (121, 9171), (122, 9168), (126, 9117),