

Pham 283736

1: Ares_33	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
2: Qyrzula_31	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
3: Godines_33	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
4: Vic9_0003B	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
5: Laurie_33	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
6: Neos5_33 + 20	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
7: Baloo_33 + 3	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
8: SlippinJimmy_33 + 2	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
9: HarveySr_33 + 6	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
10: Philly_32	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
11: Halfpint_32	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
12: Glubnar_34	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
13: Obutu_33 + 2	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
14: TinyTerror_33	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
15: Olivio_32	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
16: MmasiCarm_33	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
17: GlenHope_34 + 1	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
18: Bernardo_33	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
19: Mortcellus_32	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
20: Reccece_33	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
21: EastView9101_31_45	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
22: DigtDog_32 + 1	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
23: Nehemiah_31 + 1	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
24: Serendipitous_31	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
25: KarasumaRum_34_42	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
26: Phelemich_32 + 1	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
27: Rich_31	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
28: Baee_31	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
29: Megabear_25 + 2	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
30: Argie_26	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
31: D12_25	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108
32: PR_25	6	14	24	31	33	35	39	42	47	53	51	59	63	64	65	72	71	80	84	88	89	92	93	96	91	99	104	105	107	108

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 283736 Report

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

Pham number 283736 has 78 members, 14 are drafts.

Phages represented in each track:

- Track 1 : Ares\_33
- Track 2 : Qyrzula\_31
- Track 3 : Godines\_33
- Track 4 : Vic9\_00033
- Track 5 : Laurie\_33
- Track 6 : Neos5\_33, Chalmers\_33, Daisy\_33, Heathcliff\_33, Abinghost\_33, Chentzyk\_32, Shenandoah\_33, Morty007\_33, RomaT\_33, Deenasa\_33, Devonte\_33, Marley1013\_33, Audrey\_33, OrangeOswald\_33, Nozo\_33, RagingRooster\_33, ChaChing\_33, Chandler\_33, SynergyX\_33, LestyG\_33, Akoma\_33
- Track 7 : Baloo\_33, Gervas\_33, Tydolla\_33, Athena\_34
- Track 8 : SlippinJimmy\_33, Kamiyu\_33, Yinz\_33
- Track 9 : HarveySr\_33, Jackstina\_30, Gadget\_34, Yahalom\_33, Marlia\_33, Phlyer\_33, Phaedrus\_31
- Track 10 : Philly\_32
- Track 11 : Halfpint\_32
- Track 12 : Glubnar\_34
- Track 13 : Obutu\_33, Rita1961\_33, Mulaychimus\_33
- Track 14 : TinyTerror\_33
- Track 15 : Olivio\_32
- Track 16 : MmasiCarm\_33
- Track 17 : GlenHope\_34, Compostia\_34
- Track 18 : Bernardo\_33
- Track 19 : Mortcellus\_32
- Track 20 : Reccee\_33
- Track 21 : EastView9101\_31, Donny\_32, Suigeneris\_32, SirJeffery\_32, Rita130\_32, Acadian\_32
- Track 22 : DigitDog\_32, Nangang\_32
- Track 23 : Nehemiah\_31, Mysterious\_32
- Track 24 : Serendipitous\_31
- Track 25 : KarasumaRum\_34, Shenyu\_32, StinkyVeggy\_34
- Track 26 : Phelemich\_32, Reprobate\_32
- Track 27 : Rich\_31
- Track 28 : Baee\_31
- Track 29 : Megabear\_25, Cepens\_25, Taptic\_25
- Track 30 : Argie\_26
- Track 31 : D12\_25

- Track 32 : PR\_25

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

The start number called the most often in the published annotations is 19, it was called in 43 of the 64 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abinghost\_33, Akoma\_33, Athena\_34, Audrey\_33, Baloo\_33, Bernardo\_33, ChaChing\_33, Chalmers\_33, Chandler\_33, Chentzyk\_32, Compostia\_34, Daisy\_33, Deenasa\_33, Devonte\_33, Gadget\_34, Gervas\_33, GlenHope\_34, Glubnar\_34, Halfpint\_32, HarveySr\_33, Heathcliff\_33, Jackstina\_30, Kamiyu\_33, LestyG\_33, Marley1013\_33, Marlia\_33, MmasiCarm\_33, Mortcellus\_32, Morty007\_33, Mulaychimus\_33, Neos5\_33, Nozo\_33, Obutu\_33, Olivio\_32, OrangeOswald\_33, Phaedrus\_31, Philly\_32, Phlyer\_33, RagingRooster\_33, Rita1961\_33, RomaT\_33, Shenandoah\_33, SlippinJimmy\_33, SynergyX\_33, TinyTerror\_33, Tydolla\_33, Yahalom\_33, Yinz\_33,

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

- Mysterious\_32, Nehemiah\_31, Phelemich\_32, Reprobate\_32,

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

- Acadian\_32, Ares\_33, Argie\_26, Bae\_31, Cepens\_25, D12\_25, DigitDog\_32, Donny\_32, EastView9101\_31, Godines\_33, KarasumaRum\_34, Laurie\_33, Megabear\_25, Nangang\_32, PR\_25, Qyrzula\_31, Reccee\_33, Rich\_31, Rita130\_32, Serendipitous\_31, Shenyu\_32, SirJeffery\_32, StinkyVeggy\_34, Suigeneris\_32, Taptic\_25, Vic9\_00033,

### **Summary by start number:**

Start 1:

- Found in 19 of 78 ( 24.4% ) of genes in pham
- Manual Annotations of this start: 10 of 64
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acadian\_32 (B5), Bae\_31 (B5), DigitDog\_32 (B5), Donny\_32 (B5), EastView9101\_31 (B5), KarasumaRum\_34 (B5), Mysterious\_32 (B5), Nangang\_32 (B5), Nehemiah\_31 (B5), Phelemich\_32 (B5), Reccee\_33 (B5), Reprobate\_32 (B5), Rich\_31 (B5), Rita130\_32 (B5), Serendipitous\_31 (B5), Shenyu\_32 (B5), SirJeffery\_32 (B5), StinkyVeggy\_34 (B5), Suigeneris\_32 (B5),

Start 16:

- Found in 11 of 78 ( 14.1% ) of genes in pham
- Manual Annotations of this start: 2 of 64
- Called 18.2% of time when present
- Phage (with cluster) where this start called: Ares\_33 (B2), PR\_25 (W),

Start 17:

- Found in 8 of 78 ( 10.3% ) of genes in pham
- Manual Annotations of this start: 7 of 64

- Called 87.5% of time when present
- Phage (with cluster) where this start called: Cepens\_25 (W), Godines\_33 (B2), Laurie\_33 (B2), Megabear\_25 (W), Qyrzula\_31 (B2), Taptic\_25 (W), Vic9\_00033 (B2),

Start 18:

- Found in 3 of 78 ( 3.8% ) of genes in pham
- Manual Annotations of this start: 2 of 64
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Argie\_26 (W), D12\_25 (W),

Start 19:

- Found in 52 of 78 ( 66.7% ) of genes in pham
- Manual Annotations of this start: 43 of 64
- Called 92.3% of time when present
- Phage (with cluster) where this start called: Abinghost\_33 (B3), Akoma\_33 (B3), Athena\_34 (B3), Audrey\_33 (B3), Baloo\_33 (B3), Bernardo\_33 (B3), ChaChing\_33 (B3), Chalmers\_33 (B3), Chandler\_33 (B3), Chentzyk\_32 (B3), Compostia\_34 (B3), Daisy\_33 (B3), Deenasa\_33 (B3), Devonte\_33 (B3), Gadget\_34 (B3), Gervas\_33 (B3), GlenHope\_34 (B3), Glubnar\_34 (B3), Halfpint\_32 (B3), HarveySr\_33 (B3), Heathcliff\_33 (B3), Jackstina\_30 (B3), Kamiyu\_33 (B3), LestyG\_33 (B3), Marley1013\_33 (B3), Marlia\_33 (B3), MmasiCarm\_33 (B3), Mortcellus\_32 (B3), Morty007\_33 (B3), Mulaychimus\_33 (B3), Neos5\_33 (B3), Nozo\_33 (B3), Obutu\_33 (B3), Olivio\_32 (B3), OrangeOswald\_33 (B3), Phaedrus\_31 (B3), Philly\_32 (B3), Phlyer\_33 (B3), RagingRooster\_33 (B3), Rita1961\_33 (B3), RomaT\_33 (B3), Shenandoah\_33 (B3), SlippinJimmy\_33 (B3), SynergyX\_33 (B3), TinyTerror\_33 (B3), Tydolla\_33 (B3), Yahalom\_33 (B3), Yinz\_33 (B3),

### **Summary by clusters:**

There are 4 clusters represented in this pham: B5, W, B2, B3,

Info for manual annotations of cluster B2:

- Start number 16 was manually annotated 1 time for cluster B2.
- Start number 17 was manually annotated 4 times for cluster B2.

Info for manual annotations of cluster B3:

- Start number 19 was manually annotated 43 times for cluster B3.

Info for manual annotations of cluster B5:

- Start number 1 was manually annotated 10 times for cluster B5.

Info for manual annotations of cluster W:

- Start number 16 was manually annotated 1 time for cluster W.
- Start number 17 was manually annotated 3 times for cluster W.
- Start number 18 was manually annotated 2 times for cluster W.

### **Gene Information:**

Gene: Abinghost\_33 Start: 32219, Stop: 33421, Start Num: 19

Candidate Starts for Abinghost\_33:

(Start: 19 @32219 has 43 MA's), (22, 32252), (34, 32396), (37, 32405), (39, 32414), (43, 32453), (45, 32462), (48, 32480), (50, 32498), (51, 32516), (52, 32522), (54, 32534), (57, 32552), (59, 32567), (62, 32600), (64, 32627), (65, 32672), (74, 32753), (79, 32780), (81, 32798), (82, 32816), (88, 32858), (89, 32882), (92, 32957), (93, 32987), (95, 33047), (96, 33059), (97, 33077), (99, 33179), (103, 33284), (104, 33290), (105, 33308), (108, 33395),

Gene: Acadian\_32 Start: 32586, Stop: 34091, Start Num: 1

Candidate Starts for Acadian\_32:

(Start: 1 @32586 has 10 MA's), (2, 32604), (4, 32625), (5, 32679), (11, 32757), (12, 32775), (13, 32790), (14, 32802), (34, 33039), (42, 33090), (46, 33117), (49, 33144), (60, 33231), (61, 33246), (63, 33285), (67, 33375), (76, 33435), (90, 33558), (91, 33597), (92, 33633), (104, 33957), (110, 34077),

Gene: Akoma\_33 Start: 32223, Stop: 33425, Start Num: 19

Candidate Starts for Akoma\_33:

(Start: 19 @32223 has 43 MA's), (22, 32256), (34, 32400), (37, 32409), (39, 32418), (43, 32457), (45, 32466), (48, 32484), (50, 32502), (51, 32520), (52, 32526), (54, 32538), (57, 32556), (59, 32571), (62, 32604), (64, 32631), (65, 32676), (74, 32757), (79, 32784), (81, 32802), (82, 32820), (88, 32862), (89, 32886), (92, 32961), (93, 32991), (95, 33051), (96, 33063), (97, 33081), (99, 33183), (103, 33288), (104, 33294), (105, 33312), (108, 33399),

Gene: Ares\_33 Start: 32688, Stop: 33896, Start Num: 16

Candidate Starts for Ares\_33:

(6, 32547), (Start: 16 @32688 has 2 MA's), (Start: 17 @32691 has 7 MA's), (24, 32760), (31, 32829), (33, 32859), (34, 32871), (36, 32877), (37, 32880), (39, 32889), (43, 32928), (45, 32937), (47, 32949), (53, 33006), (57, 33027), (59, 33042), (63, 33087), (64, 33102), (65, 33147), (72, 33216), (77, 33243), (80, 33267), (84, 33312), (88, 33333), (89, 33357), (92, 33432), (93, 33462), (95, 33522), (96, 33534), (97, 33552), (99, 33654), (103, 33759), (104, 33765), (105, 33783), (107, 33834), (108, 33870),

Gene: Argie\_26 Start: 29663, Stop: 30871, Start Num: 18

Candidate Starts for Argie\_26:

(Start: 16 @29657 has 2 MA's), (Start: 18 @29663 has 2 MA's), (21, 29702), (26, 29777), (28, 29780), (32, 29813), (33, 29834), (36, 29852), (38, 29858), (39, 29864), (43, 29903), (44, 29906), (45, 29912), (53, 29981), (57, 30002), (64, 30077), (65, 30122), (67, 30152), (73, 30197), (75, 30206), (76, 30212), (77, 30218), (80, 30242), (84, 30287), (88, 30308), (89, 30332), (92, 30407), (93, 30437), (95, 30497), (96, 30509), (97, 30527), (99, 30629), (104, 30740), (105, 30758), (107, 30809), (108, 30845),

Gene: Athena\_34 Start: 32970, Stop: 34172, Start Num: 19

Candidate Starts for Athena\_34:

(Start: 19 @32970 has 43 MA's), (22, 33003), (34, 33147), (37, 33156), (39, 33165), (43, 33204), (45, 33213), (48, 33231), (53, 33282), (55, 33291), (57, 33303), (58, 33309), (59, 33318), (63, 33363), (64, 33378), (65, 33423), (68, 33462), (72, 33492), (75, 33507), (77, 33519), (80, 33543), (84, 33588), (88, 33609), (89, 33633), (92, 33708), (93, 33738), (95, 33798), (96, 33810), (97, 33828), (99, 33930), (103, 34035), (104, 34041), (105, 34059), (108, 34146),

Gene: Audrey\_33 Start: 32219, Stop: 33421, Start Num: 19

Candidate Starts for Audrey\_33:

(Start: 19 @32219 has 43 MA's), (22, 32252), (34, 32396), (37, 32405), (39, 32414), (43, 32453), (45, 32462), (48, 32480), (50, 32498), (51, 32516), (52, 32522), (54, 32534), (57, 32552), (59, 32567), (62, 32600), (64, 32627), (65, 32672), (74, 32753), (79, 32780), (81, 32798), (82, 32816), (88, 32858), (89, 32882), (92, 32957), (93, 32987), (95, 33047), (96, 33059), (97, 33077), (99, 33179), (103, 33284), (104, 33290), (105, 33308), (108, 33395),

Gene: Bae\_31 Start: 32397, Stop: 33902, Start Num: 1

Candidate Starts for Bae\_31:

(Start: 1 @32397 has 10 MA's), (2, 32415), (4, 32436), (5, 32490), (7, 32508), (12, 32586), (13, 32601), (42, 32901), (46, 32928), (49, 32955), (58, 33021), (60, 33042), (61, 33057), (63, 33096), (67, 33186), (70, 33213), (76, 33246), (88, 33342), (90, 33369), (91, 33408), (92, 33444), (97, 33567), (100, 33672), (104, 33768), (105, 33786), (110, 33888),

Gene: Baloo\_33 Start: 32222, Stop: 33424, Start Num: 19

Candidate Starts for Baloo\_33:

(Start: 19 @32222 has 43 MA's), (22, 32255), (34, 32399), (37, 32408), (39, 32417), (43, 32456), (45, 32465), (48, 32483), (53, 32534), (55, 32543), (57, 32555), (58, 32561), (59, 32570), (63, 32615), (64, 32630), (65, 32675), (68, 32714), (72, 32744), (75, 32759), (77, 32771), (80, 32795), (84, 32840), (88, 32861), (89, 32885), (92, 32960), (93, 32990), (95, 33050), (96, 33062), (97, 33080), (99, 33182), (103, 33287), (104, 33293), (105, 33311), (108, 33398),

Gene: Bernardo\_33 Start: 32309, Stop: 33511, Start Num: 19

Candidate Starts for Bernardo\_33:

(Start: 19 @32309 has 43 MA's), (22, 32342), (34, 32486), (37, 32495), (39, 32504), (43, 32543), (45, 32552), (48, 32570), (53, 32621), (55, 32630), (57, 32642), (59, 32657), (63, 32702), (64, 32717), (65, 32762), (72, 32831), (75, 32846), (77, 32858), (80, 32882), (85, 32930), (86, 32936), (87, 32942), (88, 32948), (89, 32972), (92, 33047), (93, 33077), (95, 33137), (96, 33149), (97, 33167), (99, 33269), (103, 33374), (104, 33380), (107, 33449),

Gene: Cepens\_25 Start: 29381, Stop: 30586, Start Num: 17

Candidate Starts for Cepens\_25:

(Start: 16 @29378 has 2 MA's), (Start: 17 @29381 has 7 MA's), (24, 29450), (31, 29519), (33, 29549), (34, 29561), (36, 29567), (37, 29570), (39, 29579), (43, 29618), (45, 29627), (47, 29639), (53, 29696), (55, 29705), (57, 29717), (59, 29732), (63, 29777), (64, 29792), (65, 29837), (72, 29906), (77, 29933), (80, 29957), (84, 30002), (88, 30023), (89, 30047), (92, 30122), (93, 30152), (95, 30212), (96, 30224), (97, 30242), (99, 30344), (104, 30455), (105, 30473), (107, 30524), (108, 30560),

Gene: ChaChing\_33 Start: 32234, Stop: 33436, Start Num: 19

Candidate Starts for ChaChing\_33:

(Start: 19 @32234 has 43 MA's), (22, 32267), (34, 32411), (37, 32420), (39, 32429), (43, 32468), (45, 32477), (48, 32495), (50, 32513), (51, 32531), (52, 32537), (54, 32549), (57, 32567), (59, 32582), (62, 32615), (64, 32642), (65, 32687), (74, 32768), (79, 32795), (81, 32813), (82, 32831), (88, 32873), (89, 32897), (92, 32972), (93, 33002), (95, 33062), (96, 33074), (97, 33092), (99, 33194), (103, 33299), (104, 33305), (105, 33323), (108, 33410),

Gene: Chalmers\_33 Start: 33026, Stop: 34228, Start Num: 19

Candidate Starts for Chalmers\_33:

(Start: 19 @33026 has 43 MA's), (22, 33059), (34, 33203), (37, 33212), (39, 33221), (43, 33260), (45, 33269), (48, 33287), (50, 33305), (51, 33323), (52, 33329), (54, 33341), (57, 33359), (59, 33374), (62, 33407), (64, 33434), (65, 33479), (74, 33560), (79, 33587), (81, 33605), (82, 33623), (88, 33665), (89, 33689), (92, 33764), (93, 33794), (95, 33854), (96, 33866), (97, 33884), (99, 33986), (103, 34091), (104, 34097), (105, 34115), (108, 34202),

Gene: Chandler\_33 Start: 33002, Stop: 34204, Start Num: 19

Candidate Starts for Chandler\_33:

(Start: 19 @33002 has 43 MA's), (22, 33035), (34, 33179), (37, 33188), (39, 33197), (43, 33236), (45, 33245), (48, 33263), (50, 33281), (51, 33299), (52, 33305), (54, 33317), (57, 33335), (59, 33350), (62, 33383), (64, 33410), (65, 33455), (74, 33536), (79, 33563), (81, 33581), (82, 33599), (88, 33641), (89, 33665), (92, 33740), (93, 33770), (95, 33830), (96, 33842), (97, 33860), (99, 33962), (103, 34067), (104, 34073), (105, 34091), (108, 34178),

Gene: Chentzyk\_32 Start: 32092, Stop: 33294, Start Num: 19

Candidate Starts for Chentzyk\_32:

(Start: 19 @32092 has 43 MA's), (22, 32125), (34, 32269), (37, 32278), (39, 32287), (43, 32326), (45, 32335), (48, 32353), (50, 32371), (51, 32389), (52, 32395), (54, 32407), (57, 32425), (59, 32440), (62, 32473), (64, 32500), (65, 32545), (74, 32626), (79, 32653), (81, 32671), (82, 32689), (88, 32731), (89, 32755), (92, 32830), (93, 32860), (95, 32920), (96, 32932), (97, 32950), (99, 33052), (103, 33157), (104, 33163), (105, 33181), (108, 33268),

Gene: Compostia\_34 Start: 32649, Stop: 33851, Start Num: 19

Candidate Starts for Compostia\_34:

(Start: 19 @32649 has 43 MA's), (34, 32826), (37, 32835), (39, 32844), (43, 32883), (45, 32892), (48, 32910), (50, 32928), (51, 32946), (52, 32952), (54, 32964), (57, 32982), (59, 32997), (62, 33030), (64, 33057), (65, 33102), (74, 33183), (79, 33210), (81, 33228), (82, 33246), (88, 33288), (93, 33417), (97, 33507), (99, 33609), (102, 33675), (103, 33714), (106, 33786), (109, 33828),

Gene: D12\_25 Start: 29948, Stop: 31156, Start Num: 18

Candidate Starts for D12\_25:

(Start: 16 @29942 has 2 MA's), (Start: 18 @29948 has 2 MA's), (21, 29987), (26, 30062), (28, 30065), (32, 30098), (33, 30119), (34, 30131), (36, 30137), (39, 30149), (43, 30188), (44, 30191), (53, 30266), (57, 30287), (64, 30362), (65, 30407), (67, 30437), (73, 30482), (75, 30491), (76, 30497), (77, 30503), (80, 30527), (84, 30572), (88, 30593), (89, 30617), (92, 30692), (93, 30722), (95, 30782), (96, 30794), (97, 30812), (98, 30911), (99, 30914), (103, 31019), (104, 31025), (106, 31091), (107, 31094), (108, 31130),

Gene: Daisy\_33 Start: 32246, Stop: 33448, Start Num: 19

Candidate Starts for Daisy\_33:

(Start: 19 @32246 has 43 MA's), (22, 32279), (34, 32423), (37, 32432), (39, 32441), (43, 32480), (45, 32489), (48, 32507), (50, 32525), (51, 32543), (52, 32549), (54, 32561), (57, 32579), (59, 32594), (62, 32627), (64, 32654), (65, 32699), (74, 32780), (79, 32807), (81, 32825), (82, 32843), (88, 32885), (89, 32909), (92, 32984), (93, 33014), (95, 33074), (96, 33086), (97, 33104), (99, 33206), (103, 33311), (104, 33317), (105, 33335), (108, 33422),

Gene: Deenasa\_33 Start: 32985, Stop: 34187, Start Num: 19

Candidate Starts for Deenasa\_33:

(Start: 19 @32985 has 43 MA's), (22, 33018), (34, 33162), (37, 33171), (39, 33180), (43, 33219), (45, 33228), (48, 33246), (50, 33264), (51, 33282), (52, 33288), (54, 33300), (57, 33318), (59, 33333), (62, 33366), (64, 33393), (65, 33438), (74, 33519), (79, 33546), (81, 33564), (82, 33582), (88, 33624), (89, 33648), (92, 33723), (93, 33753), (95, 33813), (96, 33825), (97, 33843), (99, 33945), (103, 34050), (104, 34056), (105, 34074), (108, 34161),

Gene: Devonte\_33 Start: 32210, Stop: 33412, Start Num: 19

Candidate Starts for Devonte\_33:

(Start: 19 @32210 has 43 MA's), (22, 32243), (34, 32387), (37, 32396), (39, 32405), (43, 32444), (45, 32453), (48, 32471), (50, 32489), (51, 32507), (52, 32513), (54, 32525), (57, 32543), (59, 32558), (62, 32591), (64, 32618), (65, 32663), (74, 32744), (79, 32771), (81, 32789), (82, 32807), (88, 32849), (89, 32873), (92, 32948), (93, 32978), (95, 33038), (96, 33050), (97, 33068), (99, 33170), (103, 33275), (104, 33281), (105, 33299), (108, 33386),

Gene: DigitDog\_32 Start: 32179, Stop: 33684, Start Num: 1

Candidate Starts for DigitDog\_32:

(Start: 1 @32179 has 10 MA's), (4, 32218), (7, 32290), (8, 32317), (12, 32368), (13, 32383), (35, 32635), (41, 32665), (42, 32683), (46, 32710), (49, 32737), (61, 32839), (63, 32878), (64, 32893), (67,

32968), (73, 33013), (74, 33019), (76, 33028), (88, 33124), (91, 33190), (92, 33226), (98, 33439), (104, 33550), (110, 33670),

Gene: Donny\_32 Start: 32591, Stop: 34096, Start Num: 1

Candidate Starts for Donny\_32:

(Start: 1 @32591 has 10 MA's), (2, 32609), (4, 32630), (5, 32684), (11, 32762), (12, 32780), (13, 32795), (14, 32807), (34, 33044), (42, 33095), (46, 33122), (49, 33149), (60, 33236), (61, 33251), (63, 33290), (67, 33380), (76, 33440), (90, 33563), (91, 33602), (92, 33638), (104, 33962), (110, 34082),

Gene: EastView9101\_31 Start: 32241, Stop: 33746, Start Num: 1

Candidate Starts for EastView9101\_31:

(Start: 1 @32241 has 10 MA's), (2, 32259), (4, 32280), (5, 32334), (11, 32412), (12, 32430), (13, 32445), (14, 32457), (34, 32694), (42, 32745), (46, 32772), (49, 32799), (60, 32886), (61, 32901), (63, 32940), (67, 33030), (76, 33090), (90, 33213), (91, 33252), (92, 33288), (104, 33612), (110, 33732),

Gene: Gadget\_34 Start: 32229, Stop: 33431, Start Num: 19

Candidate Starts for Gadget\_34:

(Start: 19 @32229 has 43 MA's), (22, 32262), (34, 32406), (37, 32415), (39, 32424), (43, 32463), (45, 32472), (48, 32490), (50, 32508), (51, 32526), (52, 32532), (54, 32544), (57, 32562), (59, 32577), (62, 32610), (64, 32637), (65, 32682), (74, 32763), (79, 32790), (81, 32808), (82, 32826), (88, 32868), (93, 32997), (97, 33087), (99, 33189), (101, 33246), (102, 33255), (103, 33294), (106, 33366), (109, 33408),

Gene: Gervas\_33 Start: 32200, Stop: 33402, Start Num: 19

Candidate Starts for Gervas\_33:

(Start: 19 @32200 has 43 MA's), (22, 32233), (34, 32377), (37, 32386), (39, 32395), (43, 32434), (45, 32443), (48, 32461), (53, 32512), (55, 32521), (57, 32533), (58, 32539), (59, 32548), (63, 32593), (64, 32608), (65, 32653), (68, 32692), (72, 32722), (75, 32737), (77, 32749), (80, 32773), (84, 32818), (88, 32839), (89, 32863), (92, 32938), (93, 32968), (95, 33028), (96, 33040), (97, 33058), (99, 33160), (103, 33265), (104, 33271), (105, 33289), (108, 33376),

Gene: GlenHope\_34 Start: 32212, Stop: 33414, Start Num: 19

Candidate Starts for GlenHope\_34:

(Start: 19 @32212 has 43 MA's), (34, 32389), (37, 32398), (39, 32407), (43, 32446), (45, 32455), (48, 32473), (50, 32491), (51, 32509), (52, 32515), (54, 32527), (57, 32545), (59, 32560), (62, 32593), (64, 32620), (65, 32665), (74, 32746), (79, 32773), (81, 32791), (82, 32809), (88, 32851), (93, 32980), (97, 33070), (99, 33172), (102, 33238), (103, 33277), (106, 33349), (109, 33391),

Gene: Glubnar\_34 Start: 32212, Stop: 33414, Start Num: 19

Candidate Starts for Glubnar\_34:

(Start: 19 @32212 has 43 MA's), (22, 32245), (34, 32389), (37, 32398), (39, 32407), (43, 32446), (45, 32455), (48, 32473), (53, 32524), (55, 32533), (57, 32545), (58, 32551), (59, 32560), (63, 32605), (64, 32620), (65, 32665), (68, 32704), (72, 32734), (75, 32749), (77, 32761), (80, 32785), (85, 32833), (86, 32839), (87, 32845), (88, 32851), (89, 32875), (92, 32950), (93, 32980), (95, 33040), (96, 33052), (97, 33070), (98, 33169), (99, 33172), (103, 33277), (104, 33283), (105, 33301), (108, 33388),

Gene: Godines\_33 Start: 32691, Stop: 33896, Start Num: 17

Candidate Starts for Godines\_33:

(6, 32547), (Start: 16 @32688 has 2 MA's), (Start: 17 @32691 has 7 MA's), (24, 32760), (31, 32829), (33, 32859), (34, 32871), (36, 32877), (37, 32880), (39, 32889), (43, 32928), (45, 32937), (47, 32949), (53, 33006), (57, 33027), (59, 33042), (63, 33087), (64, 33102), (65, 33147), (72, 33216), (77, 33243), (80, 33267), (84, 33312), (88, 33333), (89, 33357), (92, 33432), (93, 33462), (95, 33522), (96, 33534), (97, 33552), (99, 33654), (104, 33765), (105, 33783), (107, 33834), (108, 33870),

Gene: Halfpint\_32 Start: 32038, Stop: 33240, Start Num: 19

Candidate Starts for Halfpint\_32:

(Start: 19 @32038 has 43 MA's), (34, 32215), (37, 32224), (39, 32233), (43, 32272), (45, 32281), (48, 32299), (50, 32317), (51, 32335), (52, 32341), (54, 32353), (57, 32371), (59, 32386), (64, 32446), (65, 32491), (74, 32572), (79, 32599), (81, 32617), (82, 32635), (88, 32677), (93, 32806), (97, 32896), (99, 32998), (101, 33055), (102, 33064), (103, 33103), (106, 33175), (109, 33217),

Gene: HarveySr\_33 Start: 32202, Stop: 33404, Start Num: 19

Candidate Starts for HarveySr\_33:

(Start: 19 @32202 has 43 MA's), (22, 32235), (34, 32379), (37, 32388), (39, 32397), (43, 32436), (45, 32445), (48, 32463), (50, 32481), (51, 32499), (52, 32505), (54, 32517), (57, 32535), (59, 32550), (62, 32583), (64, 32610), (65, 32655), (74, 32736), (79, 32763), (81, 32781), (82, 32799), (88, 32841), (93, 32970), (97, 33060), (99, 33162), (101, 33219), (102, 33228), (103, 33267), (106, 33339), (109, 33381),

Gene: Heathcliff\_33 Start: 32184, Stop: 33386, Start Num: 19

Candidate Starts for Heathcliff\_33:

(Start: 19 @32184 has 43 MA's), (22, 32217), (34, 32361), (37, 32370), (39, 32379), (43, 32418), (45, 32427), (48, 32445), (50, 32463), (51, 32481), (52, 32487), (54, 32499), (57, 32517), (59, 32532), (62, 32565), (64, 32592), (65, 32637), (74, 32718), (79, 32745), (81, 32763), (82, 32781), (88, 32823), (89, 32847), (92, 32922), (93, 32952), (95, 33012), (96, 33024), (97, 33042), (99, 33144), (103, 33249), (104, 33255), (105, 33273), (108, 33360),

Gene: Jackstina\_30 Start: 32142, Stop: 33344, Start Num: 19

Candidate Starts for Jackstina\_30:

(Start: 19 @32142 has 43 MA's), (22, 32175), (34, 32319), (37, 32328), (39, 32337), (43, 32376), (45, 32385), (48, 32403), (50, 32421), (51, 32439), (52, 32445), (54, 32457), (57, 32475), (59, 32490), (62, 32523), (64, 32550), (65, 32595), (74, 32676), (79, 32703), (81, 32721), (82, 32739), (88, 32781), (93, 32910), (97, 33000), (99, 33102), (101, 33159), (102, 33168), (103, 33207), (106, 33279), (109, 33321),

Gene: Kamiyu\_33 Start: 32188, Stop: 33390, Start Num: 19

Candidate Starts for Kamiyu\_33:

(Start: 19 @32188 has 43 MA's), (22, 32221), (34, 32365), (37, 32374), (39, 32383), (43, 32422), (45, 32431), (48, 32449), (50, 32467), (51, 32485), (52, 32491), (54, 32503), (57, 32521), (59, 32536), (62, 32569), (64, 32596), (65, 32641), (74, 32722), (79, 32749), (81, 32767), (82, 32785), (88, 32827), (93, 32956), (94, 32965), (97, 33046), (99, 33148), (101, 33205), (102, 33214), (103, 33253), (106, 33325), (109, 33367),

Gene: KarasumaRum\_34 Start: 32734, Stop: 34239, Start Num: 1

Candidate Starts for KarasumaRum\_34:

(Start: 1 @32734 has 10 MA's), (4, 32773), (7, 32845), (11, 32905), (12, 32923), (13, 32938), (35, 33190), (41, 33220), (42, 33238), (46, 33265), (49, 33292), (61, 33394), (63, 33433), (64, 33448), (67, 33523), (73, 33568), (74, 33574), (76, 33583), (88, 33679), (91, 33745), (92, 33781), (98, 33994), (104, 34105), (110, 34225),

Gene: Laurie\_33 Start: 32132, Stop: 33340, Start Num: 17

Candidate Starts for Laurie\_33:

(Start: 16 @32129 has 2 MA's), (Start: 17 @32132 has 7 MA's), (24, 32201), (31, 32270), (33, 32300), (34, 32312), (36, 32318), (37, 32321), (39, 32330), (43, 32369), (45, 32378), (47, 32390), (53, 32447), (55, 32456), (57, 32468), (58, 32474), (59, 32483), (63, 32528), (64, 32543), (65, 32588), (72, 32657), (75, 32672), (77, 32684), (80, 32708), (85, 32756), (86, 32762), (88, 32774), (89, 32798), (92, 32873),

(93, 32903), (95, 32963), (96, 32975), (97, 32993), (98, 33092), (99, 33095), (103, 33200), (104, 33206), (106, 33272), (107, 33275),

Gene: LestyG\_33 Start: 32223, Stop: 33425, Start Num: 19

Candidate Starts for LestyG\_33:

(Start: 19 @32223 has 43 MA's), (22, 32256), (34, 32400), (37, 32409), (39, 32418), (43, 32457), (45, 32466), (48, 32484), (50, 32502), (51, 32520), (52, 32526), (54, 32538), (57, 32556), (59, 32571), (62, 32604), (64, 32631), (65, 32676), (74, 32757), (79, 32784), (81, 32802), (82, 32820), (88, 32862), (89, 32886), (92, 32961), (93, 32991), (95, 33051), (96, 33063), (97, 33081), (99, 33183), (103, 33288), (104, 33294), (105, 33312), (108, 33399),

Gene: Marley1013\_33 Start: 33001, Stop: 34203, Start Num: 19

Candidate Starts for Marley1013\_33:

(Start: 19 @33001 has 43 MA's), (22, 33034), (34, 33178), (37, 33187), (39, 33196), (43, 33235), (45, 33244), (48, 33262), (50, 33280), (51, 33298), (52, 33304), (54, 33316), (57, 33334), (59, 33349), (62, 33382), (64, 33409), (65, 33454), (74, 33535), (79, 33562), (81, 33580), (82, 33598), (88, 33640), (89, 33664), (92, 33739), (93, 33769), (95, 33829), (96, 33841), (97, 33859), (99, 33961), (103, 34066), (104, 34072), (105, 34090), (108, 34177),

Gene: Marlia\_33 Start: 32203, Stop: 33405, Start Num: 19

Candidate Starts for Marlia\_33:

(Start: 19 @32203 has 43 MA's), (22, 32236), (34, 32380), (37, 32389), (39, 32398), (43, 32437), (45, 32446), (48, 32464), (50, 32482), (51, 32500), (52, 32506), (54, 32518), (57, 32536), (59, 32551), (62, 32584), (64, 32611), (65, 32656), (74, 32737), (79, 32764), (81, 32782), (82, 32800), (88, 32842), (93, 32971), (97, 33061), (99, 33163), (101, 33220), (102, 33229), (103, 33268), (106, 33340), (109, 33382),

Gene: Megabear\_25 Start: 29324, Stop: 30529, Start Num: 17

Candidate Starts for Megabear\_25:

(Start: 16 @29321 has 2 MA's), (Start: 17 @29324 has 7 MA's), (24, 29393), (31, 29462), (33, 29492), (34, 29504), (36, 29510), (37, 29513), (39, 29522), (43, 29561), (45, 29570), (47, 29582), (53, 29639), (55, 29648), (57, 29660), (59, 29675), (63, 29720), (64, 29735), (65, 29780), (72, 29849), (77, 29876), (80, 29900), (84, 29945), (88, 29966), (89, 29990), (92, 30065), (93, 30095), (95, 30155), (96, 30167), (97, 30185), (99, 30287), (104, 30398), (105, 30416), (107, 30467), (108, 30503),

Gene: MmasiCarm\_33 Start: 32205, Stop: 33407, Start Num: 19

Candidate Starts for MmasiCarm\_33:

(Start: 19 @32205 has 43 MA's), (22, 32238), (34, 32382), (37, 32391), (39, 32400), (43, 32439), (45, 32448), (48, 32466), (53, 32517), (55, 32526), (57, 32538), (58, 32544), (59, 32553), (63, 32598), (64, 32613), (65, 32658), (72, 32727), (75, 32742), (77, 32754), (80, 32778), (85, 32826), (86, 32832), (87, 32838), (88, 32844), (89, 32868), (92, 32943), (93, 32973), (95, 33033), (96, 33045), (97, 33063), (99, 33165), (103, 33270), (104, 33276), (105, 33294), (108, 33381),

Gene: Mortcellus\_32 Start: 32857, Stop: 34059, Start Num: 19

Candidate Starts for Mortcellus\_32:

(Start: 19 @32857 has 43 MA's), (22, 32890), (34, 33034), (37, 33043), (39, 33052), (43, 33091), (45, 33100), (48, 33118), (50, 33136), (51, 33154), (52, 33160), (54, 33172), (59, 33205), (63, 33250), (64, 33265), (65, 33310), (74, 33391), (79, 33418), (81, 33436), (82, 33454), (88, 33496), (89, 33520), (92, 33595), (93, 33625), (95, 33685), (96, 33697), (97, 33715), (99, 33817), (103, 33922), (104, 33928), (105, 33946), (108, 34033),

Gene: Morty007\_33 Start: 33001, Stop: 34203, Start Num: 19

Candidate Starts for Morty007\_33:

(Start: 19 @33001 has 43 MA's), (22, 33034), (34, 33178), (37, 33187), (39, 33196), (43, 33235), (45, 33244), (48, 33262), (50, 33280), (51, 33298), (52, 33304), (54, 33316), (57, 33334), (59, 33349), (62, 33382), (64, 33409), (65, 33454), (74, 33535), (79, 33562), (81, 33580), (82, 33598), (88, 33640), (89, 33664), (92, 33739), (93, 33769), (95, 33829), (96, 33841), (97, 33859), (99, 33961), (103, 34066), (104, 34072), (105, 34090), (108, 34177),

Gene: Mulaychimus\_33 Start: 32187, Stop: 33389, Start Num: 19

Candidate Starts for Mulaychimus\_33:

(Start: 19 @32187 has 43 MA's), (22, 32220), (34, 32364), (37, 32373), (39, 32382), (43, 32421), (45, 32430), (48, 32448), (53, 32499), (55, 32508), (57, 32520), (58, 32526), (59, 32535), (63, 32580), (64, 32595), (65, 32640), (72, 32709), (75, 32724), (77, 32736), (80, 32760), (85, 32808), (86, 32814), (87, 32820), (88, 32826), (89, 32850), (92, 32925), (93, 32955), (95, 33015), (96, 33027), (97, 33045), (98, 33144), (99, 33147), (103, 33252), (104, 33258), (105, 33276), (108, 33363),

Gene: Mysterious\_32 Start: 32854, Stop: 34362, Start Num: 1

Candidate Starts for Mysterious\_32:

(Start: 1 @32854 has 10 MA's), (4, 32893), (7, 32965), (8, 32992), (9, 33001), (12, 33043), (13, 33058), (14, 33070), (15, 33100), (Start: 19 @33121 has 43 MA's), (20, 33130), (23, 33178), (27, 33232), (29, 33235), (34, 33307), (42, 33358), (46, 33385), (49, 33412), (56, 33463), (60, 33499), (61, 33514), (63, 33553), (64, 33568), (67, 33643), (73, 33688), (74, 33694), (76, 33703), (83, 33775), (88, 33799), (90, 33826), (91, 33865), (92, 33901), (97, 34027), (98, 34117), (104, 34228), (110, 34348),

Gene: Nangang\_32 Start: 32544, Stop: 34049, Start Num: 1

Candidate Starts for Nangang\_32:

(Start: 1 @32544 has 10 MA's), (4, 32583), (7, 32655), (8, 32682), (12, 32733), (13, 32748), (35, 33000), (41, 33030), (42, 33048), (46, 33075), (49, 33102), (61, 33204), (63, 33243), (64, 33258), (67, 33333), (73, 33378), (74, 33384), (76, 33393), (88, 33489), (91, 33555), (92, 33591), (98, 33804), (104, 33915), (110, 34035),

Gene: Nehemiah\_31 Start: 32857, Stop: 34362, Start Num: 1

Candidate Starts for Nehemiah\_31:

(Start: 1 @32857 has 10 MA's), (4, 32896), (7, 32968), (8, 32995), (9, 33004), (12, 33046), (13, 33061), (14, 33073), (15, 33103), (Start: 19 @33124 has 43 MA's), (20, 33133), (23, 33181), (27, 33235), (29, 33238), (34, 33310), (42, 33361), (46, 33388), (49, 33415), (56, 33466), (60, 33502), (61, 33517), (63, 33556), (64, 33571), (67, 33646), (73, 33691), (74, 33697), (76, 33706), (83, 33778), (88, 33802), (90, 33829), (91, 33868), (92, 33904), (97, 34027), (98, 34117), (104, 34228), (110, 34348),

Gene: Neos5\_33 Start: 33020, Stop: 34222, Start Num: 19

Candidate Starts for Neos5\_33:

(Start: 19 @33020 has 43 MA's), (22, 33053), (34, 33197), (37, 33206), (39, 33215), (43, 33254), (45, 33263), (48, 33281), (50, 33299), (51, 33317), (52, 33323), (54, 33335), (57, 33353), (59, 33368), (62, 33401), (64, 33428), (65, 33473), (74, 33554), (79, 33581), (81, 33599), (82, 33617), (88, 33659), (89, 33683), (92, 33758), (93, 33788), (95, 33848), (96, 33860), (97, 33878), (99, 33980), (103, 34085), (104, 34091), (105, 34109), (108, 34196),

Gene: Nozo\_33 Start: 32981, Stop: 34183, Start Num: 19

Candidate Starts for Nozo\_33:

(Start: 19 @32981 has 43 MA's), (22, 33014), (34, 33158), (37, 33167), (39, 33176), (43, 33215), (45, 33224), (48, 33242), (50, 33260), (51, 33278), (52, 33284), (54, 33296), (57, 33314), (59, 33329), (62, 33362), (64, 33389), (65, 33434), (74, 33515), (79, 33542), (81, 33560), (82, 33578), (88, 33620), (89, 33644), (92, 33719), (93, 33749), (95, 33809), (96, 33821), (97, 33839), (99, 33941), (103, 34046), (104, 34052), (105, 34070), (108, 34157),

Gene: Obutu\_33 Start: 32205, Stop: 33407, Start Num: 19

Candidate Starts for Obutu\_33:

(Start: 19 @32205 has 43 MA's), (22, 32238), (34, 32382), (37, 32391), (39, 32400), (43, 32439), (45, 32448), (48, 32466), (53, 32517), (55, 32526), (57, 32538), (58, 32544), (59, 32553), (63, 32598), (64, 32613), (65, 32658), (72, 32727), (75, 32742), (77, 32754), (80, 32778), (85, 32826), (86, 32832), (87, 32838), (88, 32844), (89, 32868), (92, 32943), (93, 32973), (95, 33033), (96, 33045), (97, 33063), (98, 33162), (99, 33165), (103, 33270), (104, 33276), (105, 33294), (108, 33381),

Gene: Olivio\_32 Start: 32074, Stop: 33276, Start Num: 19

Candidate Starts for Olivio\_32:

(Start: 19 @32074 has 43 MA's), (22, 32107), (34, 32251), (37, 32260), (39, 32269), (43, 32308), (45, 32317), (48, 32335), (50, 32353), (51, 32371), (52, 32377), (54, 32389), (57, 32407), (59, 32422), (62, 32455), (64, 32482), (65, 32527), (74, 32608), (79, 32635), (81, 32653), (82, 32671), (88, 32713), (89, 32737), (92, 32812), (93, 32842), (95, 32902), (96, 32914), (97, 32932), (98, 33031), (99, 33034), (103, 33139), (104, 33145), (105, 33163), (108, 33250),

Gene: OrangeOswald\_33 Start: 32222, Stop: 33424, Start Num: 19

Candidate Starts for OrangeOswald\_33:

(Start: 19 @32222 has 43 MA's), (22, 32255), (34, 32399), (37, 32408), (39, 32417), (43, 32456), (45, 32465), (48, 32483), (50, 32501), (51, 32519), (52, 32525), (54, 32537), (57, 32555), (59, 32570), (62, 32603), (64, 32630), (65, 32675), (74, 32756), (79, 32783), (81, 32801), (82, 32819), (88, 32861), (89, 32885), (92, 32960), (93, 32990), (95, 33050), (96, 33062), (97, 33080), (99, 33182), (103, 33287), (104, 33293), (105, 33311), (108, 33398),

Gene: PR\_25 Start: 29919, Stop: 31133, Start Num: 16

Candidate Starts for PR\_25:

(Start: 16 @29919 has 2 MA's), (Start: 18 @29925 has 2 MA's), (21, 29964), (26, 30039), (28, 30042), (32, 30075), (33, 30096), (34, 30108), (36, 30114), (39, 30126), (43, 30165), (44, 30168), (53, 30243), (57, 30264), (64, 30339), (65, 30384), (67, 30414), (73, 30459), (75, 30468), (76, 30474), (77, 30480), (80, 30504), (84, 30549), (88, 30570), (89, 30594), (92, 30669), (93, 30699), (95, 30759), (96, 30771), (97, 30789), (98, 30888), (99, 30891), (103, 30996), (104, 31002), (106, 31068), (107, 31071), (108, 31107),

Gene: Phaedrus\_31 Start: 32138, Stop: 33340, Start Num: 19

Candidate Starts for Phaedrus\_31:

(Start: 19 @32138 has 43 MA's), (22, 32171), (34, 32315), (37, 32324), (39, 32333), (43, 32372), (45, 32381), (48, 32399), (50, 32417), (51, 32435), (52, 32441), (54, 32453), (57, 32471), (59, 32486), (62, 32519), (64, 32546), (65, 32591), (74, 32672), (79, 32699), (81, 32717), (82, 32735), (88, 32777), (93, 32906), (97, 32996), (99, 33098), (101, 33155), (102, 33164), (103, 33203), (106, 33275), (109, 33317),

Gene: Phelemich\_32 Start: 32856, Stop: 34361, Start Num: 1

Candidate Starts for Phelemich\_32:

(Start: 1 @32856 has 10 MA's), (4, 32895), (7, 32967), (8, 32994), (12, 33045), (13, 33060), (14, 33072), (15, 33102), (Start: 19 @33123 has 43 MA's), (20, 33132), (27, 33234), (29, 33237), (34, 33309), (42, 33360), (46, 33387), (49, 33414), (56, 33465), (60, 33501), (61, 33516), (63, 33555), (64, 33570), (67, 33645), (73, 33690), (74, 33696), (76, 33705), (83, 33777), (88, 33801), (90, 33828), (91, 33867), (92, 33903), (103, 34221), (104, 34227), (110, 34347),

Gene: Philly\_32 Start: 32073, Stop: 33275, Start Num: 19

Candidate Starts for Philly\_32:

(Start: 19 @32073 has 43 MA's), (34, 32250), (37, 32259), (39, 32268), (43, 32307), (45, 32316), (48, 32334), (50, 32352), (51, 32370), (52, 32376), (54, 32388), (57, 32406), (59, 32421), (62, 32454), (64,

32481), (65, 32526), (74, 32607), (79, 32634), (81, 32652), (82, 32670), (88, 32712), (89, 32736), (92, 32811), (93, 32841), (95, 32901), (96, 32913), (97, 32931), (99, 33033), (103, 33138), (104, 33144), (105, 33162), (108, 33249),

Gene: Phlyer\_33 Start: 32957, Stop: 34159, Start Num: 19

Candidate Starts for Phlyer\_33:

(Start: 19 @32957 has 43 MA's), (22, 32990), (34, 33134), (37, 33143), (39, 33152), (43, 33191), (45, 33200), (48, 33218), (50, 33236), (51, 33254), (52, 33260), (54, 33272), (57, 33290), (59, 33305), (62, 33338), (64, 33365), (65, 33410), (74, 33491), (79, 33518), (81, 33536), (82, 33554), (88, 33596), (93, 33725), (97, 33815), (99, 33917), (101, 33974), (102, 33983), (103, 34022), (106, 34094), (109, 34136),

Gene: Qyrzula\_31 Start: 32776, Stop: 33981, Start Num: 17

Candidate Starts for Qyrzula\_31:

(6, 32632), (Start: 16 @32773 has 2 MA's), (Start: 17 @32776 has 7 MA's), (24, 32845), (31, 32914), (33, 32944), (34, 32956), (36, 32962), (37, 32965), (39, 32974), (43, 33013), (45, 33022), (47, 33034), (53, 33091), (57, 33112), (59, 33127), (63, 33172), (64, 33187), (65, 33232), (72, 33301), (77, 33328), (80, 33352), (84, 33397), (88, 33418), (89, 33442), (92, 33517), (93, 33547), (95, 33607), (96, 33619), (97, 33637), (99, 33739), (103, 33844), (104, 33850), (105, 33868), (107, 33919), (108, 33955),

Gene: RagingRooster\_33 Start: 32223, Stop: 33425, Start Num: 19

Candidate Starts for RagingRooster\_33:

(Start: 19 @32223 has 43 MA's), (22, 32256), (34, 32400), (37, 32409), (39, 32418), (43, 32457), (45, 32466), (48, 32484), (50, 32502), (51, 32520), (52, 32526), (54, 32538), (57, 32556), (59, 32571), (62, 32604), (64, 32631), (65, 32676), (74, 32757), (79, 32784), (81, 32802), (82, 32820), (88, 32862), (89, 32886), (92, 32961), (93, 32991), (95, 33051), (96, 33063), (97, 33081), (99, 33183), (103, 33288), (104, 33294), (105, 33312), (108, 33399),

Gene: Reccee\_33 Start: 32769, Stop: 34274, Start Num: 1

Candidate Starts for Reccee\_33:

(Start: 1 @32769 has 10 MA's), (2, 32787), (4, 32808), (5, 32862), (11, 32940), (12, 32958), (13, 32973), (14, 32985), (34, 33222), (42, 33273), (46, 33300), (49, 33327), (60, 33414), (61, 33429), (63, 33468), (67, 33558), (73, 33603), (74, 33609), (76, 33618), (90, 33741), (91, 33780), (92, 33816), (104, 34140), (110, 34260),

Gene: Reprobate\_32 Start: 32861, Stop: 34366, Start Num: 1

Candidate Starts for Reprobate\_32:

(Start: 1 @32861 has 10 MA's), (4, 32900), (7, 32972), (8, 32999), (12, 33050), (13, 33065), (14, 33077), (15, 33107), (Start: 19 @33128 has 43 MA's), (20, 33137), (27, 33239), (29, 33242), (34, 33314), (42, 33365), (46, 33392), (49, 33419), (56, 33470), (60, 33506), (61, 33521), (63, 33560), (64, 33575), (67, 33650), (73, 33695), (74, 33701), (76, 33710), (83, 33782), (88, 33806), (90, 33833), (91, 33872), (92, 33908), (103, 34226), (104, 34232), (110, 34352),

Gene: Rich\_31 Start: 32367, Stop: 33872, Start Num: 1

Candidate Starts for Rich\_31:

(Start: 1 @32367 has 10 MA's), (2, 32385), (4, 32406), (5, 32460), (7, 32478), (10, 32529), (12, 32556), (13, 32571), (42, 32871), (46, 32898), (49, 32925), (58, 32991), (60, 33012), (61, 33027), (63, 33066), (67, 33156), (70, 33183), (71, 33192), (76, 33216), (88, 33312), (90, 33339), (91, 33378), (92, 33414), (97, 33537), (100, 33642), (104, 33738), (105, 33756), (110, 33858),

Gene: Rita130\_32 Start: 32589, Stop: 34094, Start Num: 1

Candidate Starts for Rita130\_32:

(Start: 1 @32589 has 10 MA's), (2, 32607), (4, 32628), (5, 32682), (11, 32760), (12, 32778), (13, 32793), (14, 32805), (34, 33042), (42, 33093), (46, 33120), (49, 33147), (60, 33234), (61, 33249), (63, 33288), (67, 33378), (76, 33438), (90, 33561), (91, 33600), (92, 33636), (104, 33960), (110, 34080),

Gene: Rita1961\_33 Start: 32206, Stop: 33408, Start Num: 19

Candidate Starts for Rita1961\_33:

(Start: 19 @32206 has 43 MA's), (22, 32239), (34, 32383), (37, 32392), (39, 32401), (43, 32440), (45, 32449), (48, 32467), (53, 32518), (55, 32527), (57, 32539), (58, 32545), (59, 32554), (63, 32599), (64, 32614), (65, 32659), (72, 32728), (75, 32743), (77, 32755), (80, 32779), (85, 32827), (86, 32833), (87, 32839), (88, 32845), (89, 32869), (92, 32944), (93, 32974), (95, 33034), (96, 33046), (97, 33064), (98, 33163), (99, 33166), (103, 33271), (104, 33277), (105, 33295), (108, 33382),

Gene: RomaT\_33 Start: 32996, Stop: 34198, Start Num: 19

Candidate Starts for RomaT\_33:

(Start: 19 @32996 has 43 MA's), (22, 33029), (34, 33173), (37, 33182), (39, 33191), (43, 33230), (45, 33239), (48, 33257), (50, 33275), (51, 33293), (52, 33299), (54, 33311), (57, 33329), (59, 33344), (62, 33377), (64, 33404), (65, 33449), (74, 33530), (79, 33557), (81, 33575), (82, 33593), (88, 33635), (89, 33659), (92, 33734), (93, 33764), (95, 33824), (96, 33836), (97, 33854), (99, 33956), (103, 34061), (104, 34067), (105, 34085), (108, 34172),

Gene: Serendipitous\_31 Start: 32443, Stop: 33945, Start Num: 1

Candidate Starts for Serendipitous\_31:

(Start: 1 @32443 has 10 MA's), (2, 32461), (3, 32473), (4, 32482), (5, 32536), (7, 32554), (12, 32632), (13, 32647), (14, 32659), (23, 32767), (25, 32815), (30, 32827), (40, 32920), (42, 32947), (44, 32965), (46, 32974), (47, 32983), (49, 33001), (56, 33052), (58, 33067), (60, 33088), (63, 33139), (66, 33223), (67, 33229), (69, 33253), (73, 33274), (78, 33301), (88, 33385), (90, 33412), (91, 33451), (92, 33487), (98, 33700), (104, 33811), (110, 33931),

Gene: Shenandoah\_33 Start: 32195, Stop: 33397, Start Num: 19

Candidate Starts for Shenandoah\_33:

(Start: 19 @32195 has 43 MA's), (22, 32228), (34, 32372), (37, 32381), (39, 32390), (43, 32429), (45, 32438), (48, 32456), (50, 32474), (51, 32492), (52, 32498), (54, 32510), (57, 32528), (59, 32543), (62, 32576), (64, 32603), (65, 32648), (74, 32729), (79, 32756), (81, 32774), (82, 32792), (88, 32834), (89, 32858), (92, 32933), (93, 32963), (95, 33023), (96, 33035), (97, 33053), (99, 33155), (103, 33260), (104, 33266), (105, 33284), (108, 33371),

Gene: Shenyu\_32 Start: 32544, Stop: 34049, Start Num: 1

Candidate Starts for Shenyu\_32:

(Start: 1 @32544 has 10 MA's), (4, 32583), (7, 32655), (11, 32715), (12, 32733), (13, 32748), (35, 33000), (41, 33030), (42, 33048), (46, 33075), (49, 33102), (61, 33204), (63, 33243), (64, 33258), (67, 33333), (73, 33378), (74, 33384), (76, 33393), (88, 33489), (91, 33555), (92, 33591), (98, 33804), (104, 33915), (110, 34035),

Gene: SirJeffery\_32 Start: 32588, Stop: 34093, Start Num: 1

Candidate Starts for SirJeffery\_32:

(Start: 1 @32588 has 10 MA's), (2, 32606), (4, 32627), (5, 32681), (11, 32759), (12, 32777), (13, 32792), (14, 32804), (34, 33041), (42, 33092), (46, 33119), (49, 33146), (60, 33233), (61, 33248), (63, 33287), (67, 33377), (76, 33437), (90, 33560), (91, 33599), (92, 33635), (104, 33959), (110, 34079),

Gene: SlippinJimmy\_33 Start: 32984, Stop: 34186, Start Num: 19

Candidate Starts for SlippinJimmy\_33:

(Start: 19 @32984 has 43 MA's), (22, 33017), (34, 33161), (37, 33170), (39, 33179), (43, 33218), (45, 33227), (48, 33245), (50, 33263), (51, 33281), (52, 33287), (54, 33299), (57, 33317), (59, 33332), (62,

33365), (64, 33392), (65, 33437), (74, 33518), (79, 33545), (81, 33563), (82, 33581), (88, 33623), (93, 33752), (94, 33761), (97, 33842), (99, 33944), (101, 34001), (102, 34010), (103, 34049), (106, 34121), (109, 34163),

Gene: StinkyVeggy\_34 Start: 32734, Stop: 34239, Start Num: 1

Candidate Starts for StinkyVeggy\_34:

(Start: 1 @32734 has 10 MA's), (4, 32773), (7, 32845), (11, 32905), (12, 32923), (13, 32938), (35, 33190), (41, 33220), (42, 33238), (46, 33265), (49, 33292), (61, 33394), (63, 33433), (64, 33448), (67, 33523), (73, 33568), (74, 33574), (76, 33583), (88, 33679), (91, 33745), (92, 33781), (98, 33994), (104, 34105), (110, 34225),

Gene: Suigeneris\_32 Start: 32591, Stop: 34096, Start Num: 1

Candidate Starts for Suigeneris\_32:

(Start: 1 @32591 has 10 MA's), (2, 32609), (4, 32630), (5, 32684), (11, 32762), (12, 32780), (13, 32795), (14, 32807), (34, 33044), (42, 33095), (46, 33122), (49, 33149), (60, 33236), (61, 33251), (63, 33290), (67, 33380), (76, 33440), (90, 33563), (91, 33602), (92, 33638), (104, 33962), (110, 34082),

Gene: SynergyX\_33 Start: 32223, Stop: 33425, Start Num: 19

Candidate Starts for SynergyX\_33:

(Start: 19 @32223 has 43 MA's), (22, 32256), (34, 32400), (37, 32409), (39, 32418), (43, 32457), (45, 32466), (48, 32484), (50, 32502), (51, 32520), (52, 32526), (54, 32538), (57, 32556), (59, 32571), (62, 32604), (64, 32631), (65, 32676), (74, 32757), (79, 32784), (81, 32802), (82, 32820), (88, 32862), (89, 32886), (92, 32961), (93, 32991), (95, 33051), (96, 33063), (97, 33081), (99, 33183), (103, 33288), (104, 33294), (105, 33312), (108, 33399),

Gene: Taptic\_25 Start: 29324, Stop: 30529, Start Num: 17

Candidate Starts for Taptic\_25:

(Start: 16 @29321 has 2 MA's), (Start: 17 @29324 has 7 MA's), (24, 29393), (31, 29462), (33, 29492), (34, 29504), (36, 29510), (37, 29513), (39, 29522), (43, 29561), (45, 29570), (47, 29582), (53, 29639), (55, 29648), (57, 29660), (59, 29675), (63, 29720), (64, 29735), (65, 29780), (72, 29849), (77, 29876), (80, 29900), (84, 29945), (88, 29966), (89, 29990), (92, 30065), (93, 30095), (95, 30155), (96, 30167), (97, 30185), (99, 30287), (104, 30398), (105, 30416), (107, 30467), (108, 30503),

Gene: TinyTerror\_33 Start: 32208, Stop: 33410, Start Num: 19

Candidate Starts for TinyTerror\_33:

(Start: 19 @32208 has 43 MA's), (34, 32385), (37, 32394), (39, 32403), (43, 32442), (45, 32451), (48, 32469), (53, 32520), (55, 32529), (57, 32541), (58, 32547), (59, 32556), (63, 32601), (64, 32616), (65, 32661), (68, 32700), (72, 32730), (75, 32745), (77, 32757), (80, 32781), (84, 32826), (88, 32847), (89, 32871), (92, 32946), (93, 32976), (95, 33036), (96, 33048), (97, 33066), (99, 33168), (103, 33273), (104, 33279), (105, 33297), (108, 33384),

Gene: Tydolla\_33 Start: 32957, Stop: 34159, Start Num: 19

Candidate Starts for Tydolla\_33:

(Start: 19 @32957 has 43 MA's), (22, 32990), (34, 33134), (37, 33143), (39, 33152), (43, 33191), (45, 33200), (48, 33218), (53, 33269), (55, 33278), (57, 33290), (58, 33296), (59, 33305), (63, 33350), (64, 33365), (65, 33410), (68, 33449), (72, 33479), (75, 33494), (77, 33506), (80, 33530), (84, 33575), (88, 33596), (89, 33620), (92, 33695), (93, 33725), (95, 33785), (96, 33797), (97, 33815), (99, 33917), (103, 34022), (104, 34028), (105, 34046), (108, 34133),

Gene: Vic9\_00033 Start: 33132, Stop: 34337, Start Num: 17

Candidate Starts for Vic9\_00033:

(6, 32988), (Start: 16 @33129 has 2 MA's), (Start: 17 @33132 has 7 MA's), (24, 33201), (31, 33270), (33, 33300), (34, 33312), (36, 33318), (37, 33321), (39, 33330), (43, 33369), (45, 33378), (47, 33390),

(53, 33447), (55, 33456), (57, 33468), (59, 33483), (63, 33528), (64, 33543), (65, 33588), (72, 33657), (77, 33684), (80, 33708), (85, 33756), (86, 33762), (88, 33774), (89, 33798), (92, 33873), (93, 33903), (95, 33963), (96, 33975), (97, 33993), (98, 34092), (99, 34095), (103, 34200), (104, 34206), (106, 34272), (107, 34275),

Gene: Yahalom\_33 Start: 32232, Stop: 33434, Start Num: 19

Candidate Starts for Yahalom\_33:

(Start: 19 @32232 has 43 MA's), (22, 32265), (34, 32409), (37, 32418), (39, 32427), (43, 32466), (45, 32475), (48, 32493), (50, 32511), (51, 32529), (52, 32535), (54, 32547), (57, 32565), (59, 32580), (62, 32613), (64, 32640), (65, 32685), (74, 32766), (79, 32793), (81, 32811), (82, 32829), (88, 32871), (93, 33000), (97, 33090), (99, 33192), (101, 33249), (102, 33258), (103, 33297), (106, 33369), (109, 33411),

Gene: Yinz\_33 Start: 32255, Stop: 33457, Start Num: 19

Candidate Starts for Yinz\_33:

(Start: 19 @32255 has 43 MA's), (22, 32288), (34, 32432), (37, 32441), (39, 32450), (43, 32489), (45, 32498), (48, 32516), (50, 32534), (51, 32552), (52, 32558), (54, 32570), (57, 32588), (59, 32603), (62, 32636), (64, 32663), (65, 32708), (74, 32789), (79, 32816), (81, 32834), (82, 32852), (88, 32894), (93, 33023), (94, 33032), (97, 33113), (99, 33215), (101, 33272), (102, 33281), (103, 33320), (106, 33392), (109, 33434),