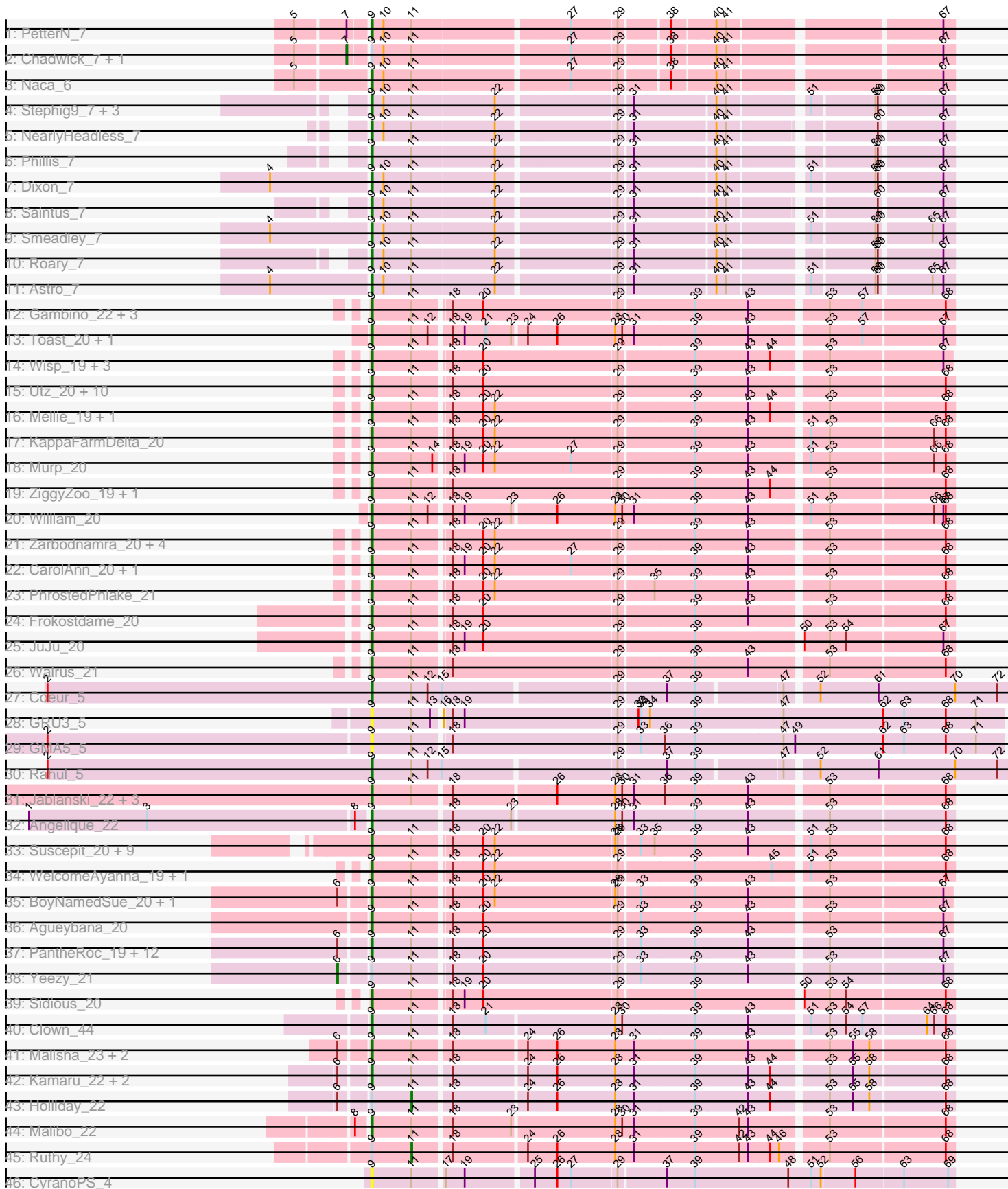


Pham 169866



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 169866 Report

This analysis was run 07/09/24 on database version 566.

Pham number 169866 has 104 members, 6 are drafts.

Phages represented in each track:

- Track 1 : PetterN\_7
- Track 2 : Chadwick\_7, Scorpia\_7
- Track 3 : Naca\_6
- Track 4 : Stephig9\_7, Expelliarmus\_6, Danforth\_6, Groundhog\_6
- Track 5 : NearlyHeadless\_7
- Track 6 : Phillis\_7
- Track 7 : Dixon\_7
- Track 8 : Saintus\_7
- Track 9 : Smeadley\_7
- Track 10 : Roary\_7
- Track 11 : Astro\_7
- Track 12 : Gambino\_22, Azula\_22, MissRona\_22, Blueberry\_22
- Track 13 : Toast\_20, PCoral7\_20
- Track 14 : Wisp\_19, CaptainKirk2\_20, UmaThurman\_20, Delian\_20
- Track 15 : Utz\_20, BlingBling\_20, Malachai\_21, JasperJr\_20, Archis\_21, Fenry\_19, Begonia\_21, Guacamole\_20, Melba\_20, Barco\_20, MintFen\_20
- Track 16 : Mellie\_19, Pipp\_20
- Track 17 : KappaFarmDelta\_20
- Track 18 : Murp\_20
- Track 19 : ZiggyZoo\_19, Obliviate\_19
- Track 20 : William\_20
- Track 21 : Zarbodnamra\_20, Jalammah\_22, Hitter\_20, Lysidious\_21, Samba\_20
- Track 22 : CarolAnn\_20, Blino\_20
- Track 23 : PhrostedPhlake\_21
- Track 24 : Frokostdame\_20
- Track 25 : JuJu\_20
- Track 26 : Walrus\_21
- Track 27 : Coeur\_5
- Track 28 : GRU3\_5
- Track 29 : GMA5\_5
- Track 30 : Rahul\_5
- Track 31 : Jablanski\_22, Posh\_22, Pytheas\_22, Wrigley\_22
- Track 32 : Angelique\_22
- Track 33 : Suscepit\_20, Tayonia\_20, Zameen\_20, Manasvini\_20, Neobush\_20, Antonio\_20, Maridalia\_19, Eudoria\_20, Trumpet\_20, Kita\_20
- Track 34 : WelcomeAyanna\_19, ThankyouJordi\_19
- Track 35 : BoyNamedSue\_20, AlumE\_20

- Track 36 : Agueybana\_20
- Track 37 : PantheRoc\_19, BatStarr\_20, Bialota\_20, Nymphadora\_20, TimTam\_20, Bosnia\_20, Zirinka\_20, BaxterFox\_19, Madeline\_20, Hugley\_20, Herod\_20, Ohgeesy\_20, Eviarto\_20
- Track 38 : Yeezy\_21
- Track 39 : Sidious\_20
- Track 40 : Clown\_44
- Track 41 : Malisha\_23, Squiddly\_24, Spooky\_22
- Track 42 : Kamaru\_22, Budski\_22, Whitney\_23
- Track 43 : Holliday\_22
- Track 44 : Malibo\_22
- Track 45 : Ruthy\_24
- Track 46 : CyranoPS\_4

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

The start number called the most often in the published annotations is 9, it was called in 93 of the 98 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Agueybana\_20, AlumE\_20, Angelique\_22, Antonio\_20, Archis\_21, Astro\_7, Azula\_22, Barco\_20, BatStarr\_20, BaxterFox\_19, Begonia\_21, Bialota\_20, BlingBling\_20, Blino\_20, Blueberry\_22, Bosnia\_20, BoyNamedSue\_20, Budski\_22, CaptainKirk2\_20, CarolAnn\_20, Clown\_44, Coeur\_5, CyranoPS\_4, Danforth\_6, Delian\_20, Dixon\_7, Eudoria\_20, Eviarto\_20, Expelliarmus\_6, Fenry\_19, Frokostdame\_20, GMA5\_5, GRU3\_5, Gambino\_22, Groundhog\_6, Guacamole\_20, Herod\_20, Hitter\_20, Hugley\_20, Jablanski\_22, Jalammah\_22, JasperJr\_20, JuJu\_20, Kamaru\_22, KappaFarmDelta\_20, Kita\_20, Lysidious\_21, Madeline\_20, Malachai\_21, Malibo\_22, Malisha\_23, Manasvini\_20, Maridalia\_19, Melba\_20, Mellie\_19, MintFen\_20, MissRona\_22, Murp\_20, Naca\_6, NearlyHeadless\_7, Neobush\_20, Nymphadora\_20, Obliviate\_19, Ohgeesy\_20, PCoral7\_20, PantheRoc\_19, PetterN\_7, Phillis\_7, PhrostedPhlake\_21, Pipp\_20, Posh\_22, Pytheas\_22, Rahul\_5, Roary\_7, Saintus\_7, Samba\_20, Sidious\_20, Smeadley\_7, Spooky\_22, Squiddly\_24, Stephig9\_7, Suscepit\_20, Tayonia\_20, ThankyouJordi\_19, TimTam\_20, Toast\_20, Trumpet\_20, UmaThurman\_20, Utz\_20, Walrus\_21, WelcomeAyanna\_19, Whitney\_23, William\_20, Wisp\_19, Wrigley\_22, Zameen\_20, Zarbodnamra\_20, ZiggyZoo\_19, Zirinka\_20,

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

- Chadwick\_7, Holliday\_22, Ruthy\_24, Scorpia\_7, Yeezy\_21,

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

- 

**Summary by start number:**

Start 6:

- Found in 23 of 104 ( 22.1% ) of genes in pham
- Manual Annotations of this start: 1 of 98
- Called 4.3% of time when present

- Phage (with cluster) where this start called: Yeezy\_21 (CZ3),

Start 7:

- Found in 3 of 104 ( 2.9% ) of genes in pham
- Manual Annotations of this start: 2 of 98
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Chadwick\_7 (A5), Scorpia\_7 (A5),

Start 9:

- Found in 104 of 104 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 93 of 98
- Called 95.2% of time when present
- Phage (with cluster) where this start called: Agueybana\_20 (CZ1), AlumE\_20 (CZ1), Angelique\_22 (CY1), Antonio\_20 (CZ1), Archis\_21 (CV), Astro\_7 (A8), Azula\_22 (CV), Barco\_20 (CV), BatStarr\_20 (CZ1), BaxterFox\_19 (CZ3), Begonia\_21 (CV), Bialota\_20 (CZ1), BlingBling\_20 (CV), Blino\_20 (CV), Blueberry\_22 (CV), Bosnia\_20 (CZ1), BoyNamedSue\_20 (CZ1), Budski\_22 (DN), CaptainKirk2\_20 (CV), CarolAnn\_20 (CV), Clown\_44 (DC2), Coeur\_5 (CW2), CyranoPS\_4 (singleton), Danforth\_6 (A8), Delian\_20 (CV), Dixon\_7 (A8), Eudoria\_20 (CZ1), Eviarto\_20 (CZ1), Expelliarmus\_6 (A8), Fenry\_19 (CV), Frokostdame\_20 (CV), GMA5\_5 (CW2), GRU3\_5 (CW2), Gambino\_22 (CV), Groundhog\_6 (A8), Guacamole\_20 (CV), Herod\_20 (CZ1), Hitter\_20 (CV), Hugley\_20 (CZ1), Jablanski\_22 (CY), Jalammah\_22 (CV), JasperJr\_20 (CV), JuJu\_20 (CV), Kamaru\_22 (DN1), KappaFarmDelta\_20 (CV), Kita\_20 (CZ1), Lysidious\_21 (CV), Madeline\_20 (CZ1), Malachai\_21 (CV), Malibo\_22 (DW), Malisha\_23 (DN), Manasvini\_20 (CZ1), Maridalia\_19 (CZ1), Melba\_20 (CV), Mellie\_19 (CV), MintFen\_20 (CV), MissRona\_22 (CV), Murp\_20 (CV), Naca\_6 (A5), NearlyHeadless\_7 (A8), Neobush\_20 (CZ1), Nymphadora\_20 (CZ1), Obliviate\_19 (CV), Ohgeesy\_20 (CZ), PCoral7\_20 (CV), PantheRoc\_19 (CZ3), PetterN\_7 (A5), Phillis\_7 (A8), PhrostedPhlake\_21 (CV), Pipp\_20 (CV), Posh\_22 (CY), Pytheas\_22 (CY), Rahul\_5 (CW2), Roary\_7 (A8), Saintus\_7 (A8), Samba\_20 (CV), Sidious\_20 (CZ7), Smeadley\_7 (A8), Spooky\_22 (DN2), Squiddly\_24 (DN2), Stephig9\_7 (A8), Suscepit\_20 (CZ1), Tayonia\_20 (CZ1), ThankyouJordi\_19 (CZ1), TimTam\_20 (CZ1), Toast\_20 (CV), Trumpet\_20 (CZ1), UmaThurman\_20 (CV), Utz\_20 (CV), Walrus\_21 (CV), WelcomeAyanna\_19 (CZ1), Whitney\_23 (DN1), William\_20 (CV), Wisp\_19 (CV), Wrigley\_22 (CY), Zameen\_20 (CZ1), Zarbodnamra\_20 (CV), ZiggyZoo\_19 (CV), Zirinka\_20 (CZ1),

Start 11:

- Found in 103 of 104 ( 99.0% ) of genes in pham
- Manual Annotations of this start: 2 of 98
- Called 1.9% of time when present
- Phage (with cluster) where this start called: Holliday\_22 (DN1), Ruthy\_24 (DW),

### Summary by clusters:

There are 16 clusters represented in this pham: DN, CY1, CZ1, CZ, CZ3, CW2, CZ7, DN2, CY, DN1, DW, A8, singleton, A5, DC2, CV,

Info for manual annotations of cluster A5:

- Start number 7 was manually annotated 2 times for cluster A5.
- Start number 9 was manually annotated 2 times for cluster A5.

Info for manual annotations of cluster A8:

- Start number 9 was manually annotated 11 times for cluster A8.

Info for manual annotations of cluster CV:

- Start number 9 was manually annotated 38 times for cluster CV.

Info for manual annotations of cluster CW2:

- Start number 9 was manually annotated 2 times for cluster CW2.

Info for manual annotations of cluster CY:

- Start number 9 was manually annotated 4 times for cluster CY.

Info for manual annotations of cluster CY1:

- Start number 9 was manually annotated 1 time for cluster CY1.

Info for manual annotations of cluster CZ:

- Start number 9 was manually annotated 1 time for cluster CZ.

Info for manual annotations of cluster CZ1:

- Start number 9 was manually annotated 24 times for cluster CZ1.

Info for manual annotations of cluster CZ3:

- Start number 6 was manually annotated 1 time for cluster CZ3.
- Start number 9 was manually annotated 1 time for cluster CZ3.

Info for manual annotations of cluster CZ7:

- Start number 9 was manually annotated 1 time for cluster CZ7.

Info for manual annotations of cluster DC2:

- Start number 9 was manually annotated 1 time for cluster DC2.

Info for manual annotations of cluster DN:

- Start number 9 was manually annotated 2 times for cluster DN.

Info for manual annotations of cluster DN1:

- Start number 9 was manually annotated 2 times for cluster DN1.
- Start number 11 was manually annotated 1 time for cluster DN1.

Info for manual annotations of cluster DN2:

- Start number 9 was manually annotated 2 times for cluster DN2.

Info for manual annotations of cluster DW:

- Start number 9 was manually annotated 1 time for cluster DW.
- Start number 11 was manually annotated 1 time for cluster DW.

### ***Gene Information:***

Gene: Agueybana\_20 Start: 19470, Stop: 20174, Start Num: 9

Candidate Starts for Agueybana\_20:

(Start: 9 @19470 has 93 MA's), (Start: 11 @19521 has 2 MA's), (18, 19563), (20, 19599), (29, 19770), (33, 19794), (39, 19863), (43, 19929), (53, 20022), (67, 20163),

Gene: AlumE\_20 Start: 19469, Stop: 20173, Start Num: 9

Candidate Starts for AlumE\_20:

(Start: 6 @19436 has 1 MA's), (Start: 9 @19469 has 93 MA's), (Start: 11 @19520 has 2 MA's), (18, 19562), (20, 19598), (22, 19613), (28, 19766), (29, 19769), (33, 19793), (39, 19862), (43, 19928), (53, 20021), (67, 20162),

Gene: Angelique\_22 Start: 19811, Stop: 20524, Start Num: 9

Candidate Starts for Angelique\_22:

(1, 19382), (3, 19535), (8, 19796), (Start: 9 @19811 has 93 MA's), (18, 19907), (23, 19982), (28, 20108), (30, 20117), (31, 20132), (39, 20210), (43, 20276), (53, 20369), (68, 20513),

Gene: Antonio\_20 Start: 19391, Stop: 20098, Start Num: 9

Candidate Starts for Antonio\_20:

(Start: 9 @19391 has 93 MA's), (Start: 11 @19442 has 2 MA's), (18, 19484), (20, 19520), (22, 19535), (28, 19688), (29, 19691), (33, 19715), (35, 19733), (39, 19784), (43, 19850), (51, 19919), (53, 19943), (68, 20087),

Gene: Archis\_21 Start: 18524, Stop: 19231, Start Num: 9

Candidate Starts for Archis\_21:

(Start: 9 @18524 has 93 MA's), (Start: 11 @18575 has 2 MA's), (18, 18617), (20, 18653), (29, 18824), (39, 18917), (43, 18983), (53, 19076), (68, 19220),

Gene: Astro\_7 Start: 4196, Stop: 4876, Start Num: 9

Candidate Starts for Astro\_7:

(4, 4070), (Start: 9 @4196 has 93 MA's), (10, 4211), (Start: 11 @4247 has 2 MA's), (22, 4352), (29, 4496), (31, 4511), (40, 4610), (41, 4622), (51, 4712), (59, 4787), (60, 4790), (65, 4850), (67, 4862),

Gene: Azula\_22 Start: 18628, Stop: 19335, Start Num: 9

Candidate Starts for Azula\_22:

(Start: 9 @18628 has 93 MA's), (Start: 11 @18679 has 2 MA's), (18, 18721), (20, 18757), (29, 18928), (39, 19021), (43, 19087), (53, 19180), (57, 19222), (68, 19324),

Gene: Barco\_20 Start: 18313, Stop: 19020, Start Num: 9

Candidate Starts for Barco\_20:

(Start: 9 @18313 has 93 MA's), (Start: 11 @18364 has 2 MA's), (18, 18406), (20, 18442), (29, 18613), (39, 18706), (43, 18772), (53, 18865), (68, 19009),

Gene: BatStarr\_20 Start: 19457, Stop: 20161, Start Num: 9

Candidate Starts for BatStarr\_20:

(Start: 6 @19424 has 1 MA's), (Start: 9 @19457 has 93 MA's), (Start: 11 @19508 has 2 MA's), (18, 19550), (20, 19586), (29, 19757), (33, 19781), (39, 19850), (43, 19916), (53, 20009), (67, 20150),

Gene: BaxterFox\_19 Start: 18796, Stop: 19500, Start Num: 9

Candidate Starts for BaxterFox\_19:

(Start: 6 @18763 has 1 MA's), (Start: 9 @18796 has 93 MA's), (Start: 11 @18847 has 2 MA's), (18, 18889), (20, 18925), (29, 19096), (33, 19120), (39, 19189), (43, 19255), (53, 19348), (67, 19489),

Gene: Begonia\_21 Start: 18791, Stop: 19498, Start Num: 9

Candidate Starts for Begonia\_21:

(Start: 9 @18791 has 93 MA's), (Start: 11 @18842 has 2 MA's), (18, 18884), (20, 18920), (29, 19091), (39, 19184), (43, 19250), (53, 19343), (68, 19487),

Gene: Bialota\_20 Start: 19469, Stop: 20173, Start Num: 9

Candidate Starts for Bialota\_20:

(Start: 6 @19436 has 1 MA's), (Start: 9 @19469 has 93 MA's), (Start: 11 @19520 has 2 MA's), (18, 19562), (20, 19598), (29, 19769), (33, 19793), (39, 19862), (43, 19928), (53, 20021), (67, 20162),

Gene: BlingBling\_20 Start: 18313, Stop: 19020, Start Num: 9

Candidate Starts for BlingBling\_20:

(Start: 9 @18313 has 93 MA's), (Start: 11 @18364 has 2 MA's), (18, 18406), (20, 18442), (29, 18613), (39, 18706), (43, 18772), (53, 18865), (68, 19009),

Gene: Blino\_20 Start: 18281, Stop: 18988, Start Num: 9

Candidate Starts for Blino\_20:

(Start: 9 @18281 has 93 MA's), (Start: 11 @18332 has 2 MA's), (18, 18374), (19, 18386), (20, 18410), (22, 18425), (27, 18524), (29, 18581), (39, 18674), (43, 18740), (53, 18833), (68, 18977),

Gene: Blueberry\_22 Start: 18628, Stop: 19335, Start Num: 9

Candidate Starts for Blueberry\_22:

(Start: 9 @18628 has 93 MA's), (Start: 11 @18679 has 2 MA's), (18, 18721), (20, 18757), (29, 18928), (39, 19021), (43, 19087), (53, 19180), (57, 19222), (68, 19324),

Gene: Bosnia\_20 Start: 19457, Stop: 20161, Start Num: 9

Candidate Starts for Bosnia\_20:

(Start: 6 @19424 has 1 MA's), (Start: 9 @19457 has 93 MA's), (Start: 11 @19508 has 2 MA's), (18, 19550), (20, 19586), (29, 19757), (33, 19781), (39, 19850), (43, 19916), (53, 20009), (67, 20150),

Gene: BoyNamedSue\_20 Start: 19469, Stop: 20173, Start Num: 9

Candidate Starts for BoyNamedSue\_20:

(Start: 6 @19436 has 1 MA's), (Start: 9 @19469 has 93 MA's), (Start: 11 @19520 has 2 MA's), (18, 19562), (20, 19598), (22, 19613), (28, 19766), (29, 19769), (33, 19793), (39, 19862), (43, 19928), (53, 20021), (67, 20162),

Gene: Budski\_22 Start: 18675, Stop: 19385, Start Num: 9

Candidate Starts for Budski\_22:

(Start: 6 @18642 has 1 MA's), (Start: 9 @18675 has 93 MA's), (Start: 11 @18726 has 2 MA's), (18, 18771), (24, 18861), (26, 18897), (28, 18972), (31, 18996), (39, 19074), (43, 19140), (44, 19167), (53, 19233), (55, 19263), (58, 19284), (68, 19374),

Gene: CaptainKirk2\_20 Start: 18337, Stop: 19041, Start Num: 9

Candidate Starts for CaptainKirk2\_20:

(Start: 9 @18337 has 93 MA's), (Start: 11 @18388 has 2 MA's), (18, 18430), (20, 18466), (29, 18637), (39, 18730), (43, 18796), (44, 18823), (53, 18889), (67, 19030),

Gene: CarolAnn\_20 Start: 18280, Stop: 18987, Start Num: 9

Candidate Starts for CarolAnn\_20:

(Start: 9 @18280 has 93 MA's), (Start: 11 @18331 has 2 MA's), (18, 18373), (19, 18385), (20, 18409), (22, 18424), (27, 18523), (29, 18580), (39, 18673), (43, 18739), (53, 18832), (68, 18976),

Gene: Chadwick\_7 Start: 4240, Stop: 4944, Start Num: 7

Candidate Starts for Chadwick\_7:

(5, 4180), (Start: 7 @4240 has 2 MA's), (Start: 9 @4264 has 93 MA's), (10, 4279), (Start: 11 @4315 has 2 MA's), (27, 4507), (29, 4564), (38, 4621), (40, 4672), (41, 4684), (67, 4930),

Gene: Clown\_44 Start: 35539, Stop: 36252, Start Num: 9

Candidate Starts for Clown\_44:

(Start: 9 @35539 has 93 MA's), (Start: 11 @35590 has 2 MA's), (18, 35635), (21, 35677), (28, 35836), (30, 35845), (39, 35938), (43, 36004), (51, 36073), (53, 36097), (54, 36118), (57, 36139), (64, 36217), (66, 36226), (68, 36241),

Gene: Coeur\_5 Start: 3259, Stop: 4041, Start Num: 9

Candidate Starts for Coeur\_5:

(2, 2839), (Start: 9 @3259 has 93 MA's), (Start: 11 @3310 has 2 MA's), (12, 3331), (15, 3349), (29, 3562), (37, 3619), (39, 3655), (47, 3757), (52, 3793), (61, 3868), (70, 3967), (72, 4021),

Gene: CyranoPS\_4 Start: 2898, Stop: 3614, Start Num: 9

Candidate Starts for CyranoPS\_4:

(Start: 9 @2898 has 93 MA's), (Start: 11 @2949 has 2 MA's), (17, 2985), (19, 3009), (25, 3090), (26, 3117), (27, 3135), (29, 3192), (37, 3249), (39, 3285), (48, 3405), (51, 3435), (52, 3447), (56, 3489), (63, 3549), (69, 3606),

Gene: Danforth\_6 Start: 4175, Stop: 4855, Start Num: 9

Candidate Starts for Danforth\_6:

(Start: 9 @4175 has 93 MA's), (10, 4190), (Start: 11 @4226 has 2 MA's), (22, 4331), (29, 4475), (31, 4490), (40, 4589), (41, 4601), (51, 4691), (59, 4766), (60, 4769), (67, 4841),

Gene: Delian\_20 Start: 18337, Stop: 19041, Start Num: 9

Candidate Starts for Delian\_20:

(Start: 9 @18337 has 93 MA's), (Start: 11 @18388 has 2 MA's), (18, 18430), (20, 18466), (29, 18637), (39, 18730), (43, 18796), (44, 18823), (53, 18889), (67, 19030),

Gene: Dixon\_7 Start: 4194, Stop: 4874, Start Num: 9

Candidate Starts for Dixon\_7:

(4, 4071), (Start: 9 @4194 has 93 MA's), (10, 4209), (Start: 11 @4245 has 2 MA's), (22, 4350), (29, 4494), (31, 4509), (40, 4608), (41, 4620), (51, 4710), (59, 4785), (60, 4788), (67, 4860),

Gene: Eudoria\_20 Start: 19391, Stop: 20098, Start Num: 9

Candidate Starts for Eudoria\_20:

(Start: 9 @19391 has 93 MA's), (Start: 11 @19442 has 2 MA's), (18, 19484), (20, 19520), (22, 19535), (28, 19688), (29, 19691), (33, 19715), (35, 19733), (39, 19784), (43, 19850), (51, 19919), (53, 19943), (68, 20087),

Gene: Eviarto\_20 Start: 19457, Stop: 20161, Start Num: 9

Candidate Starts for Eviarto\_20:

(Start: 6 @19424 has 1 MA's), (Start: 9 @19457 has 93 MA's), (Start: 11 @19508 has 2 MA's), (18, 19550), (20, 19586), (29, 19757), (33, 19781), (39, 19850), (43, 19916), (53, 20009), (67, 20150),

Gene: Expelliarmus\_6 Start: 4161, Stop: 4841, Start Num: 9

Candidate Starts for Expelliarmus\_6:

(Start: 9 @4161 has 93 MA's), (10, 4176), (Start: 11 @4212 has 2 MA's), (22, 4317), (29, 4461), (31, 4476), (40, 4575), (41, 4587), (51, 4677), (59, 4752), (60, 4755), (67, 4827),

Gene: Fenry\_19 Start: 18032, Stop: 18739, Start Num: 9

Candidate Starts for Fenry\_19:

(Start: 9 @18032 has 93 MA's), (Start: 11 @18083 has 2 MA's), (18, 18125), (20, 18161), (29, 18332), (39, 18425), (43, 18491), (53, 18584), (68, 18728),

Gene: Frokostdame\_20 Start: 18282, Stop: 18989, Start Num: 9

Candidate Starts for Frokostdame\_20:



(Start: 9 @18282 has 93 MA's), (Start: 11 @18333 has 2 MA's), (18, 18375), (20, 18411), (29, 18582), (39, 18675), (43, 18741), (53, 18834), (68, 18978),

Gene: GMA5\_5 Start: 3196, Stop: 3984, Start Num: 9

Candidate Starts for GMA5\_5:

(2, 2782), (Start: 9 @3196 has 93 MA's), (Start: 11 @3247 has 2 MA's), (18, 3289), (29, 3496), (33, 3520), (36, 3550), (39, 3589), (47, 3700), (49, 3715), (62, 3829), (63, 3856), (68, 3910), (71, 3949),

Gene: GRU3\_5 Start: 3244, Stop: 4032, Start Num: 9

Candidate Starts for GRU3\_5:

(Start: 9 @3244 has 93 MA's), (Start: 11 @3295 has 2 MA's), (13, 3319), (16, 3328), (18, 3337), (19, 3349), (29, 3544), (32, 3565), (33, 3568), (34, 3580), (39, 3637), (47, 3748), (62, 3877), (63, 3904), (68, 3958), (71, 3997),

Gene: Gambino\_22 Start: 18628, Stop: 19335, Start Num: 9

Candidate Starts for Gambino\_22:

(Start: 9 @18628 has 93 MA's), (Start: 11 @18679 has 2 MA's), (18, 18721), (20, 18757), (29, 18928), (39, 19021), (43, 19087), (53, 19180), (57, 19222), (68, 19324),

Gene: Groundhog\_6 Start: 4162, Stop: 4842, Start Num: 9

Candidate Starts for Groundhog\_6:

(Start: 9 @4162 has 93 MA's), (10, 4177), (Start: 11 @4213 has 2 MA's), (22, 4318), (29, 4462), (31, 4477), (40, 4576), (41, 4588), (51, 4678), (59, 4753), (60, 4756), (67, 4828),

Gene: Guacamole\_20 Start: 18317, Stop: 19024, Start Num: 9

Candidate Starts for Guacamole\_20:

(Start: 9 @18317 has 93 MA's), (Start: 11 @18368 has 2 MA's), (18, 18410), (20, 18446), (29, 18617), (39, 18710), (43, 18776), (53, 18869), (68, 19013),

Gene: Herod\_20 Start: 19457, Stop: 20161, Start Num: 9

Candidate Starts for Herod\_20:

(Start: 6 @19424 has 1 MA's), (Start: 9 @19457 has 93 MA's), (Start: 11 @19508 has 2 MA's), (18, 19550), (20, 19586), (29, 19757), (33, 19781), (39, 19850), (43, 19916), (53, 20009), (67, 20150),

Gene: Hitter\_20 Start: 18313, Stop: 19020, Start Num: 9

Candidate Starts for Hitter\_20:

(Start: 9 @18313 has 93 MA's), (Start: 11 @18364 has 2 MA's), (18, 18406), (20, 18442), (22, 18457), (29, 18613), (39, 18706), (43, 18772), (53, 18865), (68, 19009),

Gene: Holliday\_22 Start: 18726, Stop: 19385, Start Num: 11

Candidate Starts for Holliday\_22:

(Start: 6 @18642 has 1 MA's), (Start: 9 @18675 has 93 MA's), (Start: 11 @18726 has 2 MA's), (18, 18771), (24, 18861), (26, 18897), (28, 18972), (31, 18996), (39, 19074), (43, 19140), (44, 19167), (53, 19233), (55, 19263), (58, 19284), (68, 19374),

Gene: Hugley\_20 Start: 19457, Stop: 20161, Start Num: 9

Candidate Starts for Hugley\_20:

(Start: 6 @19424 has 1 MA's), (Start: 9 @19457 has 93 MA's), (Start: 11 @19508 has 2 MA's), (18, 19550), (20, 19586), (29, 19757), (33, 19781), (39, 19850), (43, 19916), (53, 20009), (67, 20150),

Gene: Jablanski\_22 Start: 19787, Stop: 20500, Start Num: 9

Candidate Starts for Jablanski\_22:

(Start: 9 @19787 has 93 MA's), (Start: 11 @19838 has 2 MA's), (18, 19883), (26, 20009), (28, 20084), (30, 20093), (31, 20108), (36, 20147), (39, 20186), (43, 20252), (53, 20345), (68, 20489),

Gene: Jalammah\_22 Start: 19107, Stop: 19814, Start Num: 9

Candidate Starts for Jalammah\_22:

(Start: 9 @19107 has 93 MA's), (Start: 11 @19158 has 2 MA's), (18, 19200), (20, 19236), (22, 19251), (29, 19407), (39, 19500), (43, 19566), (53, 19659), (68, 19803),

Gene: JasperJr\_20 Start: 18317, Stop: 19024, Start Num: 9

Candidate Starts for JasperJr\_20:

(Start: 9 @18317 has 93 MA's), (Start: 11 @18368 has 2 MA's), (18, 18410), (20, 18446), (29, 18617), (39, 18710), (43, 18776), (53, 18869), (68, 19013),

Gene: JuJu\_20 Start: 18238, Stop: 18942, Start Num: 9

Candidate Starts for JuJu\_20:

(Start: 9 @18238 has 93 MA's), (Start: 11 @18289 has 2 MA's), (18, 18331), (19, 18343), (20, 18367), (29, 18538), (39, 18631), (50, 18757), (53, 18790), (54, 18811), (67, 18931),

Gene: Kamaru\_22 Start: 18675, Stop: 19385, Start Num: 9

Candidate Starts for Kamaru\_22:

(Start: 6 @18642 has 1 MA's), (Start: 9 @18675 has 93 MA's), (Start: 11 @18726 has 2 MA's), (18, 18771), (24, 18861), (26, 18897), (28, 18972), (31, 18996), (39, 19074), (43, 19140), (44, 19167), (53, 19233), (55, 19263), (58, 19284), (68, 19374),

Gene: KappaFarmDelta\_20 Start: 18481, Stop: 19188, Start Num: 9

Candidate Starts for KappaFarmDelta\_20:

(Start: 9 @18481 has 93 MA's), (Start: 11 @18532 has 2 MA's), (18, 18574), (20, 18610), (22, 18625), (29, 18781), (39, 18874), (43, 18940), (51, 19009), (53, 19033), (66, 19162), (68, 19177),

Gene: Kita\_20 Start: 19391, Stop: 20098, Start Num: 9

Candidate Starts for Kita\_20:

(Start: 9 @19391 has 93 MA's), (Start: 11 @19442 has 2 MA's), (18, 19484), (20, 19520), (22, 19535), (28, 19688), (29, 19691), (33, 19715), (35, 19733), (39, 19784), (43, 19850), (51, 19919), (53, 19943), (68, 20087),

Gene: Lysidious\_21 Start: 18837, Stop: 19544, Start Num: 9

Candidate Starts for Lysidious\_21:

(Start: 9 @18837 has 93 MA's), (Start: 11 @18888 has 2 MA's), (18, 18930), (20, 18966), (22, 18981), (29, 19137), (39, 19230), (43, 19296), (53, 19389), (68, 19533),

Gene: Madeline\_20 Start: 19755, Stop: 20459, Start Num: 9

Candidate Starts for Madeline\_20:

(Start: 6 @19722 has 1 MA's), (Start: 9 @19755 has 93 MA's), (Start: 11 @19806 has 2 MA's), (18, 19848), (20, 19884), (29, 20055), (33, 20079), (39, 20148), (43, 20214), (53, 20307), (67, 20448),

Gene: Malachai\_21 Start: 18791, Stop: 19498, Start Num: 9

Candidate Starts for Malachai\_21:

(Start: 9 @18791 has 93 MA's), (Start: 11 @18842 has 2 MA's), (18, 18884), (20, 18920), (29, 19091), (39, 19184), (43, 19250), (53, 19343), (68, 19487),

Gene: Malibo\_22 Start: 18630, Stop: 19343, Start Num: 9

Candidate Starts for Malibo\_22:

(8, 18615), (Start: 9 @18630 has 93 MA's), (Start: 11 @18681 has 2 MA's), (18, 18726), (23, 18801), (28, 18927), (30, 18936), (31, 18951), (39, 19029), (42, 19083), (43, 19095), (53, 19188), (68, 19332),

Gene: Malisha\_23 Start: 20456, Stop: 21166, Start Num: 9

Candidate Starts for Malisha\_23:

(Start: 6 @20423 has 1 MA's), (Start: 9 @20456 has 93 MA's), (Start: 11 @20507 has 2 MA's), (18, 20552), (24, 20642), (26, 20678), (28, 20753), (31, 20777), (39, 20855), (43, 20921), (53, 21014), (55, 21044), (58, 21065), (68, 21155),

Gene: Manasvini\_20 Start: 19391, Stop: 20098, Start Num: 9

Candidate Starts for Manasvini\_20:

(Start: 9 @19391 has 93 MA's), (Start: 11 @19442 has 2 MA's), (18, 19484), (20, 19520), (22, 19535), (28, 19688), (29, 19691), (33, 19715), (35, 19733), (39, 19784), (43, 19850), (51, 19919), (53, 19943), (68, 20087),

Gene: Maridalia\_19 Start: 19391, Stop: 20098, Start Num: 9

Candidate Starts for Maridalia\_19:

(Start: 9 @19391 has 93 MA's), (Start: 11 @19442 has 2 MA's), (18, 19484), (20, 19520), (22, 19535), (28, 19688), (29, 19691), (33, 19715), (35, 19733), (39, 19784), (43, 19850), (51, 19919), (53, 19943), (68, 20087),

Gene: Melba\_20 Start: 18313, Stop: 19020, Start Num: 9

Candidate Starts for Melba\_20:

(Start: 9 @18313 has 93 MA's), (Start: 11 @18364 has 2 MA's), (18, 18406), (20, 18442), (29, 18613), (39, 18706), (43, 18772), (53, 18865), (68, 19009),

Gene: Mellie\_19 Start: 18074, Stop: 18781, Start Num: 9

Candidate Starts for Mellie\_19:

(Start: 9 @18074 has 93 MA's), (Start: 11 @18125 has 2 MA's), (18, 18167), (20, 18203), (22, 18218), (29, 18374), (39, 18467), (43, 18533), (44, 18560), (53, 18626), (68, 18770),

Gene: MintFen\_20 Start: 18313, Stop: 19020, Start Num: 9

Candidate Starts for MintFen\_20:

(Start: 9 @18313 has 93 MA's), (Start: 11 @18364 has 2 MA's), (18, 18406), (20, 18442), (29, 18613), (39, 18706), (43, 18772), (53, 18865), (68, 19009),

Gene: MissRona\_22 Start: 18628, Stop: 19335, Start Num: 9

Candidate Starts for MissRona\_22:

(Start: 9 @18628 has 93 MA's), (Start: 11 @18679 has 2 MA's), (18, 18721), (20, 18757), (29, 18928), (39, 19021), (43, 19087), (53, 19180), (57, 19222), (68, 19324),

Gene: Murp\_20 Start: 18381, Stop: 19088, Start Num: 9

Candidate Starts for Murp\_20:

(Start: 9 @18381 has 93 MA's), (Start: 11 @18432 has 2 MA's), (14, 18459), (18, 18474), (19, 18486), (20, 18510), (22, 18525), (27, 18624), (29, 18681), (39, 18774), (43, 18840), (51, 18909), (53, 18933), (66, 19062), (68, 19077),

Gene: Naca\_6 Start: 4378, Stop: 5058, Start Num: 9

Candidate Starts for Naca\_6:

(5, 4291), (Start: 9 @4378 has 93 MA's), (10, 4393), (Start: 11 @4429 has 2 MA's), (27, 4621), (29, 4678), (38, 4735), (40, 4786), (41, 4798), (67, 5044),

Gene: NearlyHeadless\_7 Start: 4201, Stop: 4878, Start Num: 9

Candidate Starts for NearlyHeadless\_7:

(Start: 9 @4201 has 93 MA's), (10, 4216), (Start: 11 @4252 has 2 MA's), (22, 4357), (29, 4501), (31, 4516), (40, 4615), (41, 4627), (60, 4792), (67, 4864),

Gene: Neobush\_20 Start: 19391, Stop: 20098, Start Num: 9

Candidate Starts for Neobush\_20:

(Start: 9 @19391 has 93 MA's), (Start: 11 @19442 has 2 MA's), (18, 19484), (20, 19520), (22, 19535), (28, 19688), (29, 19691), (33, 19715), (35, 19733), (39, 19784), (43, 19850), (51, 19919), (53, 19943), (68, 20087),

Gene: Nymphadora\_20 Start: 19457, Stop: 20161, Start Num: 9

Candidate Starts for Nymphadora\_20:

(Start: 6 @19424 has 1 MA's), (Start: 9 @19457 has 93 MA's), (Start: 11 @19508 has 2 MA's), (18, 19550), (20, 19586), (29, 19757), (33, 19781), (39, 19850), (43, 19916), (53, 20009), (67, 20150),

Gene: Obliviate\_19 Start: 18103, Stop: 18810, Start Num: 9

Candidate Starts for Obliviate\_19:

(Start: 9 @18103 has 93 MA's), (Start: 11 @18154 has 2 MA's), (18, 18196), (29, 18403), (39, 18496), (43, 18562), (44, 18589), (53, 18655), (68, 18799),

Gene: Ohgeesy\_20 Start: 19080, Stop: 19784, Start Num: 9

Candidate Starts for Ohgeesy\_20:

(Start: 6 @19047 has 1 MA's), (Start: 9 @19080 has 93 MA's), (Start: 11 @19131 has 2 MA's), (18, 19173), (20, 19209), (29, 19380), (33, 19404), (39, 19473), (43, 19539), (53, 19632), (67, 19773),

Gene: PCoral7\_20 Start: 18403, Stop: 19116, Start Num: 9

Candidate Starts for PCoral7\_20:

(Start: 9 @18403 has 93 MA's), (Start: 11 @18454 has 2 MA's), (12, 18475), (18, 18499), (19, 18514), (21, 18541), (23, 18574), (24, 18589), (26, 18625), (28, 18700), (30, 18709), (31, 18724), (39, 18802), (43, 18868), (53, 18961), (57, 19003), (67, 19102),

Gene: PantheRoc\_19 Start: 18788, Stop: 19492, Start Num: 9

Candidate Starts for PantheRoc\_19:

(Start: 6 @18755 has 1 MA's), (Start: 9 @18788 has 93 MA's), (Start: 11 @18839 has 2 MA's), (18, 18881), (20, 18917), (29, 19088), (33, 19112), (39, 19181), (43, 19247), (53, 19340), (67, 19481),

Gene: PetterN\_7 Start: 4265, Stop: 4945, Start Num: 9

Candidate Starts for PetterN\_7:

(5, 4181), (Start: 7 @4241 has 2 MA's), (Start: 9 @4265 has 93 MA's), (10, 4280), (Start: 11 @4316 has 2 MA's), (27, 4508), (29, 4565), (38, 4622), (40, 4673), (41, 4685), (67, 4931),

Gene: Phillis\_7 Start: 4159, Stop: 4836, Start Num: 9

Candidate Starts for Phillis\_7:

(Start: 9 @4159 has 93 MA's), (Start: 11 @4210 has 2 MA's), (22, 4315), (29, 4459), (31, 4474), (40, 4573), (41, 4585), (59, 4747), (60, 4750), (67, 4822),

Gene: PhrostedPhlake\_21 Start: 18689, Stop: 19396, Start Num: 9

Candidate Starts for PhrostedPhlake\_21:

(Start: 9 @18689 has 93 MA's), (Start: 11 @18740 has 2 MA's), (18, 18782), (20, 18818), (22, 18833), (29, 18989), (35, 19031), (39, 19082), (43, 19148), (53, 19241), (68, 19385),

Gene: Pipp\_20 Start: 18307, Stop: 19014, Start Num: 9

Candidate Starts for Pipp\_20:

(Start: 9 @18307 has 93 MA's), (Start: 11 @18358 has 2 MA's), (18, 18400), (20, 18436), (22, 18451), (29, 18607), (39, 18700), (43, 18766), (44, 18793), (53, 18859), (68, 19003),

Gene: Posh\_22 Start: 19640, Stop: 20353, Start Num: 9

Candidate Starts for Posh\_22:

(Start: 9 @19640 has 93 MA's), (Start: 11 @19691 has 2 MA's), (18, 19736), (26, 19862), (28, 19937), (30, 19946), (31, 19961), (36, 20000), (39, 20039), (43, 20105), (53, 20198), (68, 20342),

Gene: Pytheas\_22 Start: 19786, Stop: 20499, Start Num: 9

Candidate Starts for Pytheas\_22:

(Start: 9 @19786 has 93 MA's), (Start: 11 @19837 has 2 MA's), (18, 19882), (26, 20008), (28, 20083), (30, 20092), (31, 20107), (36, 20146), (39, 20185), (43, 20251), (53, 20344), (68, 20488),

Gene: Rahul\_5 Start: 3256, Stop: 4038, Start Num: 9

Candidate Starts for Rahul\_5:

(2, 2836), (Start: 9 @3256 has 93 MA's), (Start: 11 @3307 has 2 MA's), (12, 3328), (15, 3346), (29, 3559), (37, 3616), (39, 3652), (47, 3754), (52, 3790), (61, 3865), (70, 3964), (72, 4018),

Gene: Roary\_7 Start: 4160, Stop: 4840, Start Num: 9

Candidate Starts for Roary\_7:

(Start: 9 @4160 has 93 MA's), (10, 4175), (Start: 11 @4211 has 2 MA's), (22, 4316), (29, 4460), (31, 4475), (40, 4574), (41, 4586), (59, 4751), (60, 4754), (67, 4826),

Gene: Ruthy\_24 Start: 21732, Stop: 22394, Start Num: 11

Candidate Starts for Ruthy\_24:

(Start: 9 @21681 has 93 MA's), (Start: 11 @21732 has 2 MA's), (18, 21777), (24, 21867), (26, 21903), (28, 21978), (31, 22002), (39, 22080), (42, 22134), (43, 22146), (44, 22173), (46, 22185), (53, 22239), (68, 22383),

Gene: Saintus\_7 Start: 4176, Stop: 4853, Start Num: 9

Candidate Starts for Saintus\_7:

(Start: 9 @4176 has 93 MA's), (10, 4191), (Start: 11 @4227 has 2 MA's), (22, 4332), (29, 4476), (31, 4491), (40, 4590), (41, 4602), (60, 4767), (67, 4839),

Gene: Samba\_20 Start: 18391, Stop: 19098, Start Num: 9

Candidate Starts for Samba\_20:

(Start: 9 @18391 has 93 MA's), (Start: 11 @18442 has 2 MA's), (18, 18484), (20, 18520), (22, 18535), (29, 18691), (39, 18784), (43, 18850), (53, 18943), (68, 19087),

Gene: Scorpia\_7 Start: 4242, Stop: 4946, Start Num: 7

Candidate Starts for Scorpia\_7:

(5, 4182), (Start: 7 @4242 has 2 MA's), (Start: 9 @4266 has 93 MA's), (10, 4281), (Start: 11 @4317 has 2 MA's), (27, 4509), (29, 4566), (38, 4623), (40, 4674), (41, 4686), (67, 4932),

Gene: Sidious\_20 Start: 18909, Stop: 19616, Start Num: 9

Candidate Starts for Sidious\_20:

(Start: 9 @18909 has 93 MA's), (Start: 11 @18960 has 2 MA's), (18, 19002), (19, 19014), (20, 19038), (29, 19209), (39, 19302), (50, 19428), (53, 19461), (54, 19482), (68, 19605),

Gene: Smeadley\_7 Start: 4193, Stop: 4873, Start Num: 9

Candidate Starts for Smeadley\_7:

(4, 4070), (Start: 9 @4193 has 93 MA's), (10, 4208), (Start: 11 @4244 has 2 MA's), (22, 4349), (29, 4493), (31, 4508), (40, 4607), (41, 4619), (51, 4709), (59, 4784), (60, 4787), (65, 4847), (67, 4859),

Gene: Spooky\_22 Start: 18665, Stop: 19375, Start Num: 9

Candidate Starts for Spooky\_22:

(Start: 6 @18632 has 1 MA's), (Start: 9 @18665 has 93 MA's), (Start: 11 @18716 has 2 MA's), (18, 18761), (24, 18851), (26, 18887), (28, 18962), (31, 18986), (39, 19064), (43, 19130), (53, 19223), (55, 19253), (58, 19274), (68, 19364),

Gene: Squiddly\_24 Start: 20077, Stop: 20787, Start Num: 9

Candidate Starts for Squiddly\_24:

(Start: 6 @20044 has 1 MA's), (Start: 9 @20077 has 93 MA's), (Start: 11 @20128 has 2 MA's), (18, 20173), (24, 20263), (26, 20299), (28, 20374), (31, 20398), (39, 20476), (43, 20542), (53, 20635), (55, 20665), (58, 20686), (68, 20776),

Gene: Stephig9\_7 Start: 4161, Stop: 4841, Start Num: 9

Candidate Starts for Stephig9\_7:

(Start: 9 @4161 has 93 MA's), (10, 4176), (Start: 11 @4212 has 2 MA's), (22, 4317), (29, 4461), (31, 4476), (40, 4575), (41, 4587), (51, 4677), (59, 4752), (60, 4755), (67, 4827),

Gene: Suscepit\_20 Start: 19391, Stop: 20098, Start Num: 9

Candidate Starts for Suscepit\_20:

(Start: 9 @19391 has 93 MA's), (Start: 11 @19442 has 2 MA's), (18, 19484), (20, 19520), (22, 19535), (28, 19688), (29, 19691), (33, 19715), (35, 19733), (39, 19784), (43, 19850), (51, 19919), (53, 19943), (68, 20087),

Gene: Tayonia\_20 Start: 19391, Stop: 20098, Start Num: 9

Candidate Starts for Tayonia\_20:

(Start: 9 @19391 has 93 MA's), (Start: 11 @19442 has 2 MA's), (18, 19484), (20, 19520), (22, 19535), (28, 19688), (29, 19691), (33, 19715), (35, 19733), (39, 19784), (43, 19850), (51, 19919), (53, 19943), (68, 20087),

Gene: ThankyouJordi\_19 Start: 19426, Stop: 20133, Start Num: 9

Candidate Starts for ThankyouJordi\_19:

(Start: 9 @19426 has 93 MA's), (Start: 11 @19477 has 2 MA's), (18, 19519), (20, 19555), (22, 19570), (29, 19726), (39, 19819), (45, 19915), (51, 19954), (53, 19978), (68, 20122),

Gene: TimTam\_20 Start: 19457, Stop: 20161, Start Num: 9

Candidate Starts for TimTam\_20:

(Start: 6 @19424 has 1 MA's), (Start: 9 @19457 has 93 MA's), (Start: 11 @19508 has 2 MA's), (18, 19550), (20, 19586), (29, 19757), (33, 19781), (39, 19850), (43, 19916), (53, 20009), (67, 20150),

Gene: Toast\_20 Start: 18403, Stop: 19116, Start Num: 9

Candidate Starts for Toast\_20:

(Start: 9 @18403 has 93 MA's), (Start: 11 @18454 has 2 MA's), (12, 18475), (18, 18499), (19, 18514), (21, 18541), (23, 18574), (24, 18589), (26, 18625), (28, 18700), (30, 18709), (31, 18724), (39, 18802), (43, 18868), (53, 18961), (57, 19003), (67, 19102),

Gene: Trumpet\_20 Start: 19391, Stop: 20098, Start Num: 9

Candidate Starts for Trumpet\_20:

(Start: 9 @19391 has 93 MA's), (Start: 11 @19442 has 2 MA's), (18, 19484), (20, 19520), (22, 19535), (28, 19688), (29, 19691), (33, 19715), (35, 19733), (39, 19784), (43, 19850), (51, 19919), (53, 19943), (68, 20087),

Gene: UmaThurman\_20 Start: 18441, Stop: 19145, Start Num: 9

Candidate Starts for UmaThurman\_20:

(Start: 9 @18441 has 93 MA's), (Start: 11 @18492 has 2 MA's), (18, 18534), (20, 18570), (29, 18741), (39, 18834), (43, 18900), (44, 18927), (53, 18993), (67, 19134),

Gene: Utz\_20 Start: 18308, Stop: 19015, Start Num: 9

Candidate Starts for Utz\_20:

(Start: 9 @18308 has 93 MA's), (Start: 11 @18359 has 2 MA's), (18, 18401), (20, 18437), (29, 18608), (39, 18701), (43, 18767), (53, 18860), (68, 19004),

Gene: Walrus\_21 Start: 18536, Stop: 19243, Start Num: 9

Candidate Starts for Walrus\_21:

(Start: 9 @18536 has 93 MA's), (Start: 11 @18587 has 2 MA's), (18, 18629), (29, 18836), (39, 18929), (43, 18995), (53, 19088), (68, 19232),

Gene: WelcomeAyanna\_19 Start: 19426, Stop: 20133, Start Num: 9

Candidate Starts for WelcomeAyanna\_19:

(Start: 9 @19426 has 93 MA's), (Start: 11 @19477 has 2 MA's), (18, 19519), (20, 19555), (22, 19570), (29, 19726), (39, 19819), (45, 19915), (51, 19954), (53, 19978), (68, 20122),

Gene: Whitney\_23 Start: 19479, Stop: 20189, Start Num: 9

Candidate Starts for Whitney\_23:

(Start: 6 @19446 has 1 MA's), (Start: 9 @19479 has 93 MA's), (Start: 11 @19530 has 2 MA's), (18, 19575), (24, 19665), (26, 19701), (28, 19776), (31, 19800), (39, 19878), (43, 19944), (44, 19971), (53, 20037), (55, 20067), (58, 20088), (68, 20178),

Gene: William\_20 Start: 18351, Stop: 19064, Start Num: 9

Candidate Starts for William\_20:

(Start: 9 @18351 has 93 MA's), (Start: 11 @18402 has 2 MA's), (12, 18423), (18, 18447), (19, 18462), (23, 18522), (26, 18573), (28, 18648), (30, 18657), (31, 18672), (39, 18750), (43, 18816), (51, 18885), (53, 18909), (66, 19038), (67, 19050), (68, 19053),

Gene: Wisp\_19 Start: 18026, Stop: 18730, Start Num: 9

Candidate Starts for Wisp\_19:

(Start: 9 @18026 has 93 MA's), (Start: 11 @18077 has 2 MA's), (18, 18119), (20, 18155), (29, 18326), (39, 18419), (43, 18485), (44, 18512), (53, 18578), (67, 18719),

Gene: Wrigley\_22 Start: 19537, Stop: 20250, Start Num: 9

Candidate Starts for Wrigley\_22:

(Start: 9 @19537 has 93 MA's), (Start: 11 @19588 has 2 MA's), (18, 19633), (26, 19759), (28, 19834), (30, 19843), (31, 19858), (36, 19897), (39, 19936), (43, 20002), (53, 20095), (68, 20239),

Gene: Yeezy\_21 Start: 18779, Stop: 19516, Start Num: 6

Candidate Starts for Yeezy\_21:

(Start: 6 @18779 has 1 MA's), (Start: 9 @18812 has 93 MA's), (Start: 11 @18863 has 2 MA's), (18, 18905), (20, 18941), (29, 19112), (33, 19136), (39, 19205), (43, 19271), (53, 19364), (67, 19505),

Gene: Zameen\_20 Start: 19391, Stop: 20098, Start Num: 9

Candidate Starts for Zameen\_20:

(Start: 9 @19391 has 93 MA's), (Start: 11 @19442 has 2 MA's), (18, 19484), (20, 19520), (22, 19535), (28, 19688), (29, 19691), (33, 19715), (35, 19733), (39, 19784), (43, 19850), (51, 19919), (53, 19943), (68, 20087),

Gene: Zarbodnamra\_20 Start: 18312, Stop: 19019, Start Num: 9

Candidate Starts for Zarbodnamra\_20:

(Start: 9 @18312 has 93 MA's), (Start: 11 @18363 has 2 MA's), (18, 18405), (20, 18441), (22, 18456), (29, 18612), (39, 18705), (43, 18771), (53, 18864), (68, 19008),

Gene: ZiggyZoo\_19 Start: 18103, Stop: 18810, Start Num: 9

Candidate Starts for ZiggyZoo\_19:

(Start: 9 @18103 has 93 MA's), (Start: 11 @18154 has 2 MA's), (18, 18196), (29, 18403), (39, 18496), (43, 18562), (44, 18589), (53, 18655), (68, 18799),

Gene: Zirinka\_20 Start: 19469, Stop: 20173, Start Num: 9

Candidate Starts for Zirinka\_20:

(Start: 6 @19436 has 1 MA's), (Start: 9 @19469 has 93 MA's), (Start: 11 @19520 has 2 MA's), (18, 19562), (20, 19598), (29, 19769), (33, 19793), (39, 19862), (43, 19928), (53, 20021), (67, 20162),