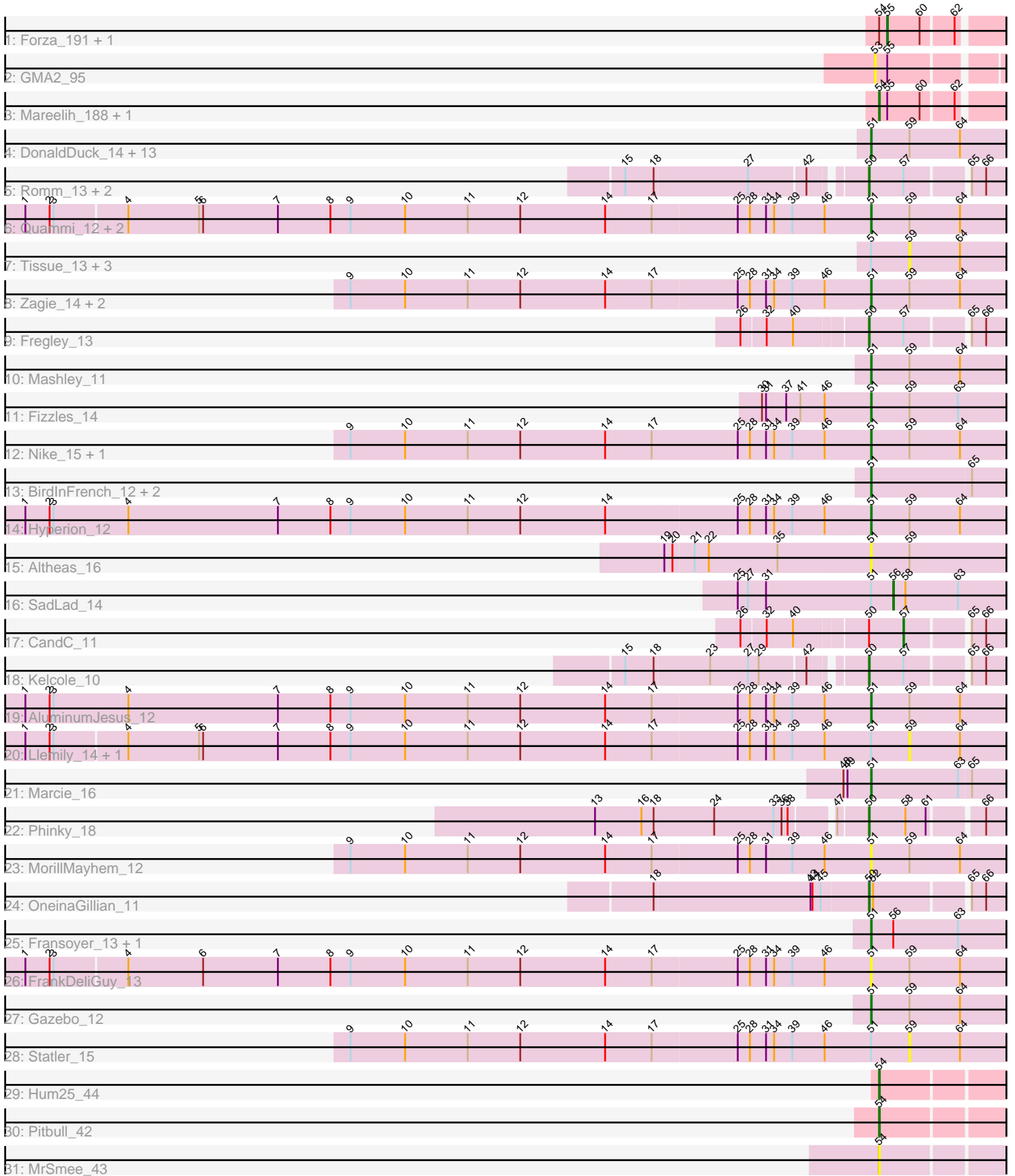


Pham 194028



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 194028 Report

This analysis was run 11/02/24 on database version 579.

Pham number 194028 has 60 members, 16 are drafts.

Phages represented in each track:

- Track 1 : Forza\_191, BlueNGold\_187
- Track 2 : GMA2\_95
- Track 3 : Mareelih\_188, Boopy\_191
- Track 4 : DonaldDuck\_14, Phabia\_14, Namago\_14, BabyDotz\_13, Lonelysoil\_13, SallyK\_15, Casend\_15, Wheelie\_13, Wayne3\_15, Jehoshaphat\_16, StrawberryJamm\_16, Teehee\_16, Grassboy\_15, Judebell\_16
- Track 5 : Romm\_13, Tempo\_11, RobinRose\_12
- Track 6 : Quammi\_12, Rudy\_12, Viceroy\_13
- Track 7 : Tissue\_13, EverythinBagel\_14, Kyva\_17, Zhafia\_17
- Track 8 : Zagie\_14, Rowlf\_10, Blab\_12
- Track 9 : Fregley\_13
- Track 10 : Mashley\_11
- Track 11 : Fizzles\_14
- Track 12 : Nike\_15, Squash\_16
- Track 13 : BirdInFrench\_12, Pepe25\_11, Wilca\_12
- Track 14 : Hyperion\_12
- Track 15 : Altheas\_16
- Track 16 : SadLad\_14
- Track 17 : CandC\_11
- Track 18 : Kelcole\_10
- Track 19 : AluminumJesus\_12
- Track 20 : Llemily\_14, Sillytadpoles\_14
- Track 21 : Marcie\_16
- Track 22 : Phinky\_18
- Track 23 : MorillMayhem\_12
- Track 24 : OneinaGillian\_11
- Track 25 : Fransoyer\_13, RubyRalph\_13
- Track 26 : FrankDeliGuy\_13
- Track 27 : Gazebo\_12
- Track 28 : Statler\_15
- Track 29 : Hum25\_44
- Track 30 : Pitbull\_42
- Track 31 : MrSmee\_43

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

The start number called the most often in the published annotations is 51, it was called in 30 of the 44 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Altheas\_16, AluminumJesus\_12, BabyDotz\_13, BirdInFrench\_12, Blab\_12, Casend\_15, DonaldDuck\_14, Fizzles\_14, FrankDeliGuy\_13, Fransoyer\_13, Gazebo\_12, Grassboy\_15, Hyperion\_12, Jehoshaphat\_16, Judebell\_16, Lonelysoil\_13, Marcie\_16, Mashley\_11, MorillMayhem\_12, Namago\_14, Nike\_15, Pepe25\_11, Phabia\_14, Quammi\_12, Rowlf\_10, RubyRalph\_13, Rudy\_12, SallyK\_15, Squash\_16, StrawberryJamm\_16, Teehee\_16, Viceroy\_13, Wayne3\_15, Wheelie\_13, Wilca\_12, Zagie\_14,

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

- EverythinBagel\_14, Kyva\_17, Llemily\_14, SadLad\_14, Sillytadpoles\_14, Statler\_15, Tissue\_13, Zhafia\_17,

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

- BlueNGold\_187, Boopy\_191, CandC\_11, Forza\_191, Fregley\_13, GMA2\_95, Hum25\_44, Kelcole\_10, Mareelih\_188, MrSmee\_43, OneinaGillian\_11, Phinky\_18, Pitbull\_42, RobinRose\_12, Romm\_13, Tempo\_11,

### Summary by start number:

Start 50:

- Found in 8 of 60 ( 13.3% ) of genes in pham
- Manual Annotations of this start: 6 of 44
- Called 87.5% of time when present
- Phage (with cluster) where this start called: Fregley\_13 (EG), Kelcole\_10 (EG), OneinaGillian\_11 (EG), Phinky\_18 (EG), RobinRose\_12 (EG), Romm\_13 (EG), Tempo\_11 (EG),

Start 51:

- Found in 44 of 60 ( 73.3% ) of genes in pham
- Manual Annotations of this start: 30 of 44
- Called 81.8% of time when present
- Phage (with cluster) where this start called: Altheas\_16 (EG), AluminumJesus\_12 (EG), BabyDotz\_13 (EG), BirdInFrench\_12 (EG), Blab\_12 (EG), Casend\_15 (EG), DonaldDuck\_14 (EG), Fizzles\_14 (EG), FrankDeliGuy\_13 (EG), Fransoyer\_13 (EG), Gazebo\_12 (EG), Grassboy\_15 (EG), Hyperion\_12 (EG), Jehoshaphat\_16 (EG), Judebell\_16 (EG), Lonelysoil\_13 (EG), Marcie\_16 (EG), Mashley\_11 (EG), MorillMayhem\_12 (EG), Namago\_14 (EG), Nike\_15 (EG), Pepe25\_11 (EG), Phabia\_14 (EG), Quammi\_12 (EG), Rowlf\_10 (EG), RubyRalph\_13 (EG), Rudy\_12 (EG), SallyK\_15 (EG), Squash\_16 (EG), StrawberryJamm\_16 (EG), Teehee\_16 (EG), Viceroy\_13 (EG), Wayne3\_15 (EG), Wheelie\_13 (EG), Wilca\_12 (EG), Zagie\_14 (EG),

Start 53:

- Found in 1 of 60 ( 1.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: GMA2\_95 (DS),

Start 54:

- Found in 7 of 60 ( 11.7% ) of genes in pham
- Manual Annotations of this start: 4 of 44
- Called 71.4% of time when present
- Phage (with cluster) where this start called: Boopy\_191 (DS), Hum25\_44 (FQ), Mareelih\_188 (DS), MrSmee\_43 (UNK), Pitbull\_42 (FQ),

Start 55:

- Found in 5 of 60 ( 8.3% ) of genes in pham
- Manual Annotations of this start: 2 of 44
- Called 40.0% of time when present
- Phage (with cluster) where this start called: BlueNGold\_187 (DS), Forza\_191 (DS),

Start 56:

- Found in 3 of 60 ( 5.0% ) of genes in pham
- Manual Annotations of this start: 1 of 44
- Called 33.3% of time when present
- Phage (with cluster) where this start called: SadLad\_14 (EG),

Start 57:

- Found in 6 of 60 ( 10.0% ) of genes in pham
- Manual Annotations of this start: 1 of 44
- Called 16.7% of time when present
- Phage (with cluster) where this start called: CandC\_11 (EG),

Start 59:

- Found in 37 of 60 ( 61.7% ) of genes in pham
- No Manual Annotations of this start.
- Called 18.9% of time when present
- Phage (with cluster) where this start called: EverythinBagel\_14 (EG), Kyva\_17 (EG), Llemily\_14 (EG), Sillytadpoles\_14 (EG), Statler\_15 (EG), Tissue\_13 (EG), Zhafia\_17 (EG),

**Summary by clusters:**

There are 4 clusters represented in this pham: FQ, EG, UNK, DS,

Info for manual annotations of cluster DS:

- Start number 54 was manually annotated 2 times for cluster DS.
- Start number 55 was manually annotated 2 times for cluster DS.

Info for manual annotations of cluster EG:

- Start number 50 was manually annotated 6 times for cluster EG.
- Start number 51 was manually annotated 30 times for cluster EG.
- Start number 56 was manually annotated 1 time for cluster EG.
- Start number 57 was manually annotated 1 time for cluster EG.

Info for manual annotations of cluster FQ:

- Start number 54 was manually annotated 2 times for cluster FQ.

### **Gene Information:**

Gene: Altheas\_16 Start: 5368, Stop: 5153, Start Num: 51

Candidate Starts for Altheas\_16:

(19, 5665), (20, 5653), (21, 5623), (22, 5602), (35, 5500), (Start: 51 @5368 has 30 MA's), (59, 5311),

Gene: AluminumJesus\_12 Start: 4567, Stop: 4352, Start Num: 51

Candidate Starts for AluminumJesus\_12:

(1, 5812), (2, 5776), (3, 5770), (4, 5659), (7, 5437), (8, 5359), (9, 5329), (10, 5248), (11, 5155), (12, 5077), (14, 4951), (17, 4882), (25, 4759), (28, 4741), (31, 4717), (34, 4705), (39, 4678), (46, 4630), (Start: 51 @4567 has 30 MA's), (59, 4510), (64, 4435),

Gene: BabyDotz\_13 Start: 5024, Stop: 4809, Start Num: 51

Candidate Starts for BabyDotz\_13:

(Start: 51 @5024 has 30 MA's), (59, 4967), (64, 4892),

Gene: BirdInFrench\_12 Start: 3464, Stop: 3252, Start Num: 51

Candidate Starts for BirdInFrench\_12:

(Start: 51 @3464 has 30 MA's), (65, 3317),

Gene: Blab\_12 Start: 4349, Stop: 4134, Start Num: 51

Candidate Starts for Blab\_12:

(9, 5111), (10, 5030), (11, 4937), (12, 4859), (14, 4733), (17, 4664), (25, 4541), (28, 4523), (31, 4499), (34, 4487), (39, 4460), (46, 4412), (Start: 51 @4349 has 30 MA's), (59, 4292), (64, 4217),

Gene: BlueNGold\_187 Start: 109354, Stop: 109548, Start Num: 55

Candidate Starts for BlueNGold\_187:

(Start: 54 @109342 has 4 MA's), (Start: 55 @109354 has 2 MA's), (60, 109402), (62, 109447),

Gene: Boopy\_191 Start: 109353, Stop: 109559, Start Num: 54

Candidate Starts for Boopy\_191:

(Start: 54 @109353 has 4 MA's), (Start: 55 @109365 has 2 MA's), (60, 109413), (62, 109458),

Gene: CandC\_11 Start: 3165, Stop: 3016, Start Num: 57

Candidate Starts for CandC\_11:

(26, 3390), (32, 3357), (40, 3318), (Start: 50 @3216 has 6 MA's), (Start: 57 @3165 has 1 MA's), (65, 3081), (66, 3060),

Gene: Casend\_15 Start: 5321, Stop: 5106, Start Num: 51

Candidate Starts for Casend\_15:

(Start: 51 @5321 has 30 MA's), (59, 5264), (64, 5189),

Gene: DonaldDuck\_14 Start: 4667, Stop: 4452, Start Num: 51

Candidate Starts for DonaldDuck\_14:

(Start: 51 @4667 has 30 MA's), (59, 4610), (64, 4535),

Gene: EverythinBagel\_14 Start: 5038, Stop: 4880, Start Num: 59

Candidate Starts for EverythinBagel\_14:

(Start: 51 @5095 has 30 MA's), (59, 5038), (64, 4963),

Gene: Fizzles\_14 Start: 4739, Stop: 4524, Start Num: 51

Candidate Starts for Fizzles\_14:

(30, 4895), (31, 4889), (37, 4859), (41, 4838), (46, 4802), (Start: 51 @4739 has 30 MA's), (59, 4682), (63, 4610),

Gene: Forza\_191 Start: 109282, Stop: 109476, Start Num: 55

Candidate Starts for Forza\_191:

(Start: 54 @109270 has 4 MA's), (Start: 55 @109282 has 2 MA's), (60, 109330), (62, 109375),

Gene: FrankDeliGuy\_13 Start: 4553, Stop: 4338, Start Num: 51

Candidate Starts for FrankDeliGuy\_13:

(1, 5792), (2, 5756), (3, 5750), (4, 5645), (6, 5534), (7, 5423), (8, 5345), (9, 5315), (10, 5234), (11, 5141), (12, 5063), (14, 4937), (17, 4868), (25, 4745), (28, 4727), (31, 4703), (34, 4691), (39, 4664), (46, 4616), (Start: 51 @4553 has 30 MA's), (59, 4496), (64, 4421),

Gene: Fransoyer\_13 Start: 4233, Stop: 4018, Start Num: 51

Candidate Starts for Fransoyer\_13:

(Start: 51 @4233 has 30 MA's), (Start: 56 @4200 has 1 MA's), (63, 4104),

Gene: Fregley\_13 Start: 3754, Stop: 3554, Start Num: 50

Candidate Starts for Fregley\_13:

(26, 3928), (32, 3895), (40, 3856), (Start: 50 @3754 has 6 MA's), (Start: 57 @3703 has 1 MA's), (65, 3619), (66, 3598),

Gene: GMA2\_95 Start: 87367, Stop: 87170, Start Num: 53

Candidate Starts for GMA2\_95:

(53, 87367), (Start: 55 @87349 has 2 MA's),

Gene: Gazebo\_12 Start: 4574, Stop: 4359, Start Num: 51

Candidate Starts for Gazebo\_12:

(Start: 51 @4574 has 30 MA's), (59, 4517), (64, 4442),

Gene: Grassboy\_15 Start: 5355, Stop: 5140, Start Num: 51

Candidate Starts for Grassboy\_15:

(Start: 51 @5355 has 30 MA's), (59, 5298), (64, 5223),

Gene: Hum25\_44 Start: 27639, Stop: 27827, Start Num: 54

Candidate Starts for Hum25\_44:

(Start: 54 @27639 has 4 MA's),

Gene: Hyperion\_12 Start: 4612, Stop: 4397, Start Num: 51

Candidate Starts for Hyperion\_12:

(1, 5857), (2, 5821), (3, 5815), (4, 5704), (7, 5482), (8, 5404), (9, 5374), (10, 5293), (11, 5200), (12, 5122), (14, 4996), (25, 4804), (28, 4786), (31, 4762), (34, 4750), (39, 4723), (46, 4675), (Start: 51 @4612 has 30 MA's), (59, 4555), (64, 4480),

Gene: Jehoshaphat\_16 Start: 5613, Stop: 5398, Start Num: 51

Candidate Starts for Jehoshaphat\_16:

(Start: 51 @5613 has 30 MA's), (59, 5556), (64, 5481),

Gene: Judebell\_16 Start: 5139, Stop: 4924, Start Num: 51

Candidate Starts for Judebell\_16:

(Start: 51 @5139 has 30 MA's), (59, 5082), (64, 5007),

Gene: Kelcole\_10 Start: 3363, Stop: 3163, Start Num: 50

Candidate Starts for Kelcole\_10:

(15, 3684), (18, 3642), (23, 3561), (27, 3507), (29, 3492), (42, 3432), (Start: 50 @3363 has 6 MA's), (Start: 57 @3312 has 1 MA's), (65, 3228), (66, 3207),

Gene: Kyva\_17 Start: 5333, Stop: 5175, Start Num: 59

Candidate Starts for Kyva\_17:

(Start: 51 @5390 has 30 MA's), (59, 5333), (64, 5258),

Gene: Llemily\_14 Start: 4332, Stop: 4174, Start Num: 59

Candidate Starts for Llemily\_14:

(1, 5628), (2, 5592), (3, 5586), (4, 5481), (5, 5376), (6, 5370), (7, 5259), (8, 5181), (9, 5151), (10, 5070), (11, 4977), (12, 4899), (14, 4773), (17, 4704), (25, 4581), (28, 4563), (31, 4539), (34, 4527), (39, 4500), (46, 4452), (Start: 51 @4389 has 30 MA's), (59, 4332), (64, 4257),

Gene: Lonelysoil\_13 Start: 4634, Stop: 4419, Start Num: 51

Candidate Starts for Lonelysoil\_13:

(Start: 51 @4634 has 30 MA's), (59, 4577), (64, 4502),

Gene: Marcie\_16 Start: 4028, Stop: 3816, Start Num: 51

Candidate Starts for Marcie\_16:

(48, 4067), (49, 4061), (Start: 51 @4028 has 30 MA's), (63, 3899), (65, 3881),

Gene: Mareelih\_188 Start: 108788, Stop: 108994, Start Num: 54

Candidate Starts for Mareelih\_188:

(Start: 54 @108788 has 4 MA's), (Start: 55 @108800 has 2 MA's), (60, 108848), (62, 108893),

Gene: Mashley\_11 Start: 4429, Stop: 4214, Start Num: 51

Candidate Starts for Mashley\_11:

(Start: 51 @4429 has 30 MA's), (59, 4372), (64, 4297),

Gene: MorillMayhem\_12 Start: 4437, Stop: 4222, Start Num: 51

Candidate Starts for MorillMayhem\_12:

(9, 5199), (10, 5118), (11, 5025), (12, 4947), (14, 4821), (17, 4752), (25, 4629), (28, 4611), (31, 4587), (39, 4548), (46, 4500), (Start: 51 @4437 has 30 MA's), (59, 4380), (64, 4305),

Gene: MrSmee\_43 Start: 28469, Stop: 28657, Start Num: 54

Candidate Starts for MrSmee\_43:

(Start: 54 @28469 has 4 MA's),

Gene: Namago\_14 Start: 4446, Stop: 4231, Start Num: 51

Candidate Starts for Namago\_14:

(Start: 51 @4446 has 30 MA's), (59, 4389), (64, 4314),

Gene: Nike\_15 Start: 5337, Stop: 5122, Start Num: 51

Candidate Starts for Nike\_15:

(9, 6102), (10, 6021), (11, 5928), (12, 5850), (14, 5724), (17, 5655), (25, 5529), (28, 5511), (31, 5487), (34, 5475), (39, 5448), (46, 5400), (Start: 51 @5337 has 30 MA's), (59, 5280), (64, 5205),

Gene: OneinaGillian\_11 Start: 3006, Stop: 2806, Start Num: 50

Candidate Starts for OneinaGillian\_11:

(18, 3318), (43, 3090), (44, 3087), (45, 3075), (Start: 50 @3006 has 6 MA's), (52, 3000), (65, 2871), (66, 2850),

Gene: Pepe25\_11 Start: 3464, Stop: 3252, Start Num: 51

Candidate Starts for Pepe25\_11:

(Start: 51 @3464 has 30 MA's), (65, 3317),

Gene: Phabia\_14 Start: 4804, Stop: 4589, Start Num: 51

Candidate Starts for Phabia\_14:

(Start: 51 @4804 has 30 MA's), (59, 4747), (64, 4672),

Gene: Phinky\_18 Start: 5034, Stop: 4834, Start Num: 50

Candidate Starts for Phinky\_18:

(13, 5412), (16, 5343), (18, 5325), (24, 5235), (33, 5151), (36, 5139), (38, 5130), (47, 5076), (Start: 50 @5034 has 6 MA's), (58, 4980), (61, 4950), (66, 4878),

Gene: Pitbull\_42 Start: 26865, Stop: 27053, Start Num: 54

Candidate Starts for Pitbull\_42:

(Start: 54 @26865 has 4 MA's),

Gene: Quammi\_12 Start: 4378, Stop: 4163, Start Num: 51

Candidate Starts for Quammi\_12:

(1, 5617), (2, 5581), (3, 5575), (4, 5470), (5, 5365), (6, 5359), (7, 5248), (8, 5170), (9, 5140), (10, 5059), (11, 4966), (12, 4888), (14, 4762), (17, 4693), (25, 4570), (28, 4552), (31, 4528), (34, 4516), (39, 4489), (46, 4441), (Start: 51 @4378 has 30 MA's), (59, 4321), (64, 4246),

Gene: RobinRose\_12 Start: 3192, Stop: 2992, Start Num: 50

Candidate Starts for RobinRose\_12:

(15, 3513), (18, 3471), (27, 3336), (42, 3261), (Start: 50 @3192 has 6 MA's), (Start: 57 @3141 has 1 MA's), (65, 3057), (66, 3036),

Gene: Romm\_13 Start: 3192, Stop: 2992, Start Num: 50

Candidate Starts for Romm\_13:

(15, 3513), (18, 3471), (27, 3336), (42, 3261), (Start: 50 @3192 has 6 MA's), (Start: 57 @3141 has 1 MA's), (65, 3057), (66, 3036),

Gene: Rowlf\_10 Start: 4144, Stop: 3929, Start Num: 51

Candidate Starts for Rowlf\_10:

(9, 4906), (10, 4825), (11, 4732), (12, 4654), (14, 4528), (17, 4459), (25, 4336), (28, 4318), (31, 4294), (34, 4282), (39, 4255), (46, 4207), (Start: 51 @4144 has 30 MA's), (59, 4087), (64, 4012),

Gene: RubyRalph\_13 Start: 4167, Stop: 3952, Start Num: 51

Candidate Starts for RubyRalph\_13:

(Start: 51 @4167 has 30 MA's), (Start: 56 @4134 has 1 MA's), (63, 4038),

Gene: Rudy\_12 Start: 4378, Stop: 4163, Start Num: 51

Candidate Starts for Rudy\_12:

(1, 5617), (2, 5581), (3, 5575), (4, 5470), (5, 5365), (6, 5359), (7, 5248), (8, 5170), (9, 5140), (10, 5059), (11, 4966), (12, 4888), (14, 4762), (17, 4693), (25, 4570), (28, 4552), (31, 4528), (34, 4516), (39, 4489), (46, 4441), (Start: 51 @4378 has 30 MA's), (59, 4321), (64, 4246),

Gene: SadLad\_14 Start: 4551, Stop: 4369, Start Num: 56

Candidate Starts for SadLad\_14:

(25, 4779), (27, 4764), (31, 4737), (Start: 51 @4584 has 30 MA's), (Start: 56 @4551 has 1 MA's), (58, 4533), (63, 4455),



Gene: SallyK\_15 Start: 5539, Stop: 5324, Start Num: 51

Candidate Starts for SallyK\_15:

(Start: 51 @5539 has 30 MA's), (59, 5482), (64, 5407),

Gene: Sillytadpoles\_14 Start: 4319, Stop: 4161, Start Num: 59

Candidate Starts for Sillytadpoles\_14:

(1, 5615), (2, 5579), (3, 5573), (4, 5468), (5, 5363), (6, 5357), (7, 5246), (8, 5168), (9, 5138), (10, 5057), (11, 4964), (12, 4886), (14, 4760), (17, 4691), (25, 4568), (28, 4550), (31, 4526), (34, 4514), (39, 4487), (46, 4439), (Start: 51 @4376 has 30 MA's), (59, 4319), (64, 4244),

Gene: Squash\_16 Start: 5392, Stop: 5177, Start Num: 51

Candidate Starts for Squash\_16:

(9, 6157), (10, 6076), (11, 5983), (12, 5905), (14, 5779), (17, 5710), (25, 5584), (28, 5566), (31, 5542), (34, 5530), (39, 5503), (46, 5455), (Start: 51 @5392 has 30 MA's), (59, 5335), (64, 5260),

Gene: Statler\_15 Start: 4855, Stop: 4697, Start Num: 59

Candidate Starts for Statler\_15:

(9, 5674), (10, 5593), (11, 5500), (12, 5422), (14, 5296), (17, 5227), (25, 5104), (28, 5086), (31, 5062), (34, 5050), (39, 5023), (46, 4975), (Start: 51 @4912 has 30 MA's), (59, 4855), (64, 4780),

Gene: StrawberryJamm\_16 Start: 4678, Stop: 4463, Start Num: 51

Candidate Starts for StrawberryJamm\_16:

(Start: 51 @4678 has 30 MA's), (59, 4621), (64, 4546),

Gene: Teehee\_16 Start: 5613, Stop: 5398, Start Num: 51

Candidate Starts for Teehee\_16:

(Start: 51 @5613 has 30 MA's), (59, 5556), (64, 5481),

Gene: Tempo\_11 Start: 3387, Stop: 3187, Start Num: 50

Candidate Starts for Tempo\_11:

(15, 3708), (18, 3666), (27, 3531), (42, 3456), (Start: 50 @3387 has 6 MA's), (Start: 57 @3336 has 1 MA's), (65, 3252), (66, 3231),

Gene: Tissue\_13 Start: 4687, Stop: 4529, Start Num: 59

Candidate Starts for Tissue\_13:

(Start: 51 @4744 has 30 MA's), (59, 4687), (64, 4612),

Gene: Viceroy\_13 Start: 4378, Stop: 4163, Start Num: 51

Candidate Starts for Viceroy\_13:

(1, 5617), (2, 5581), (3, 5575), (4, 5470), (5, 5365), (6, 5359), (7, 5248), (8, 5170), (9, 5140), (10, 5059), (11, 4966), (12, 4888), (14, 4762), (17, 4693), (25, 4570), (28, 4552), (31, 4528), (34, 4516), (39, 4489), (46, 4441), (Start: 51 @4378 has 30 MA's), (59, 4321), (64, 4246),

Gene: Wayne3\_15 Start: 5316, Stop: 5101, Start Num: 51

Candidate Starts for Wayne3\_15:

(Start: 51 @5316 has 30 MA's), (59, 5259), (64, 5184),

Gene: Wheelie\_13 Start: 4667, Stop: 4452, Start Num: 51

Candidate Starts for Wheelie\_13:

(Start: 51 @4667 has 30 MA's), (59, 4610), (64, 4535),

Gene: Wilca\_12 Start: 3464, Stop: 3252, Start Num: 51

Candidate Starts for Wilca\_12:

(Start: 51 @3464 has 30 MA's), (65, 3317),

Gene: Zagie\_14 Start: 4881, Stop: 4666, Start Num: 51

Candidate Starts for Zagie\_14:

(9, 5643), (10, 5562), (11, 5469), (12, 5391), (14, 5265), (17, 5196), (25, 5073), (28, 5055), (31, 5031),  
(34, 5019), (39, 4992), (46, 4944), (Start: 51 @4881 has 30 MA's), (59, 4824), (64, 4749),

Gene: Zhafia\_17 Start: 5059, Stop: 4901, Start Num: 59

Candidate Starts for Zhafia\_17:

(Start: 51 @5116 has 30 MA's), (59, 5059), (64, 4984),