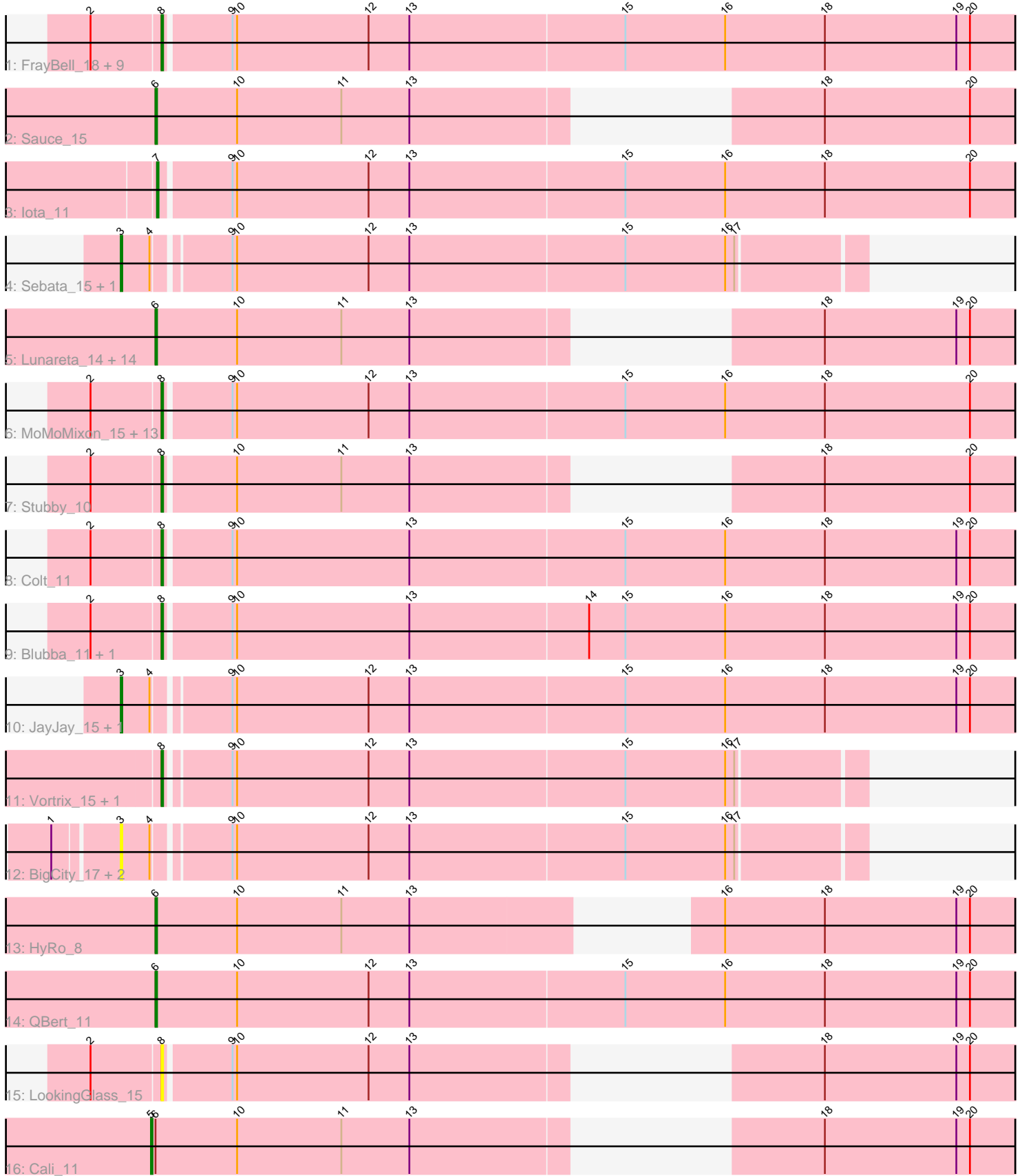


Pham 311630



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 311630 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311630 has 58 members, 14 are drafts.

Phages represented in each track:

- Track 1 : FrayBell\_18, LolaVinca\_15, InterFolia\_18, PharkleMinkus\_18, I3\_16, LordLeafolot\_18, Pupusa\_18, Bigswole\_17, Tainan\_18, Nappy\_14
- Track 2 : Sauce\_15
- Track 3 : Iota\_11
- Track 4 : Sebata\_15, LinStu\_15
- Track 5 : Lunareta\_14, BeanWater\_10, CharlieB\_10, Duckfeet\_11, Maturis\_15, DTDevon\_14, Koguma\_11, Phox\_11, Halldule\_11, Montpel\_14, Shaqnato\_11, FoxtrotP1\_12, BadAgartude\_11, DeejaClivia\_9, LRRHood\_11
- Track 6 : MoMoMixon\_15, Delylah\_12, Caravan\_12, Tyke\_15, Lethe\_15, Pio\_16, Bxz1\_15, Mangeria\_16, Shelob\_13, Spud\_16, Naval22\_16, Nidhogg\_15, ScottMcG\_12, ErnieJ\_12
- Track 7 : Stubby\_10
- Track 8 : Colt\_11
- Track 9 : Blubba\_11, Cane17\_11
- Track 10 : JayJay\_15, Specks\_16
- Track 11 : Vortrix\_15, Tonenili\_15
- Track 12 : BigCity\_17, Grasshills\_17, EggyFarm\_17
- Track 13 : HyRo\_8
- Track 14 : QBert\_11
- Track 15 : LookingGlass\_15
- Track 16 : Cali\_11

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

The start number called the most often in the published annotations is 8, it was called in 26 of the 44 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Bigswole\_17, Blubba\_11, Bxz1\_15, Cane17\_11, Caravan\_12, Colt\_11, Delylah\_12, ErnieJ\_12, FrayBell\_18, I3\_16, InterFolia\_18, Lethe\_15, LolaVinca\_15, LookingGlass\_15, LordLeafolot\_18, Mangeria\_16, MoMoMixon\_15, Nappy\_14, Naval22\_16, Nidhogg\_15, PharkleMinkus\_18, Pio\_16, Pupusa\_18, ScottMcG\_12, Shelob\_13, Spud\_16, Stubby\_10, Tainan\_18, Tonenili\_15, Tyke\_15, Vortrix\_15,

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

- 

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

- BadAgartude\_11, BeanWater\_10, BigCity\_17, Cali\_11, CharlieB\_10, DTDevon\_14, DeejaClivia\_9, Duckfeet\_11, EggyFarm\_17, FoxtrotP1\_12, Grasshills\_17, Halldule\_11, HyRo\_8, Iota\_11, JayJay\_15, Koguma\_11, LRRHood\_11, LinStu\_15, Lunareta\_14, Maturis\_15, Montpel\_14, Phox\_11, QBert\_11, Sauce\_15, Sebata\_15, Shaqnato\_11, Specks\_16,

### Summary by start number:

Start 3:

- Found in 7 of 58 ( 12.1% ) of genes in pham
- Manual Annotations of this start: 4 of 44
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BigCity\_17 (C1), EggyFarm\_17 (C1), Grasshills\_17 (C1), JayJay\_15 (C1), LinStu\_15 (C1), Sebata\_15 (C1), Specks\_16 (C1),

Start 5:

- Found in 1 of 58 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 1 of 44
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cali\_11 (C1),

Start 6:

- Found in 19 of 58 ( 32.8% ) of genes in pham
- Manual Annotations of this start: 12 of 44
- Called 94.7% of time when present
- Phage (with cluster) where this start called: BadAgartude\_11 (C1), BeanWater\_10 (C1), CharlieB\_10 (C1), DTDevon\_14 (C1), DeejaClivia\_9 (C1), Duckfeet\_11 (C1), FoxtrotP1\_12 (C1), Halldule\_11 (C1), HyRo\_8 (C1), Koguma\_11 (C1), LRRHood\_11 (C1), Lunareta\_14 (C1), Maturis\_15 (C1), Montpel\_14 (C1), Phox\_11 (C1), QBert\_11 (C1), Sauce\_15 (C1), Shaqnato\_11 (C1),

Start 7:

- Found in 1 of 58 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 1 of 44
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Iota\_11 (C1),

Start 8:

- Found in 31 of 58 ( 53.4% ) of genes in pham
- Manual Annotations of this start: 26 of 44
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bigswole\_17 (C1), Blubba\_11 (C1), Bxz1\_15 (C1), Cane17\_11 (C1), Caravan\_12 (C1), Colt\_11 (C1), Delylah\_12 (C1), ErnieJ\_12 (C1), FrayBell\_18 (C1), I3\_16 (C1), InterFolia\_18 (C1), Lethe\_15 (C1), LolaVinca\_15 (C1), LookingGlass\_15 (C1), LordLeafolot\_18 (C1), Mangeria\_16 (C1), MoMoMixon\_15 (C1), Nappy\_14 (C1), Naval22\_16 (C1), Nidhogg\_15 (C1), PharkleMinkus\_18 (C1), Pio\_16 (C1), Pupusa\_18 (C1), ScottMcG\_12 (C1), Shelob\_13 (C1), Spud\_16 (C1), Stubby\_10 (C1), Tainan\_18 (C1), Tonenili\_15 (C1),

Tyke\_15 (C1), Vortrix\_15 (C1),

### **Summary by clusters:**

There is one cluster represented in this pham: C1

Info for manual annotations of cluster C1:

- Start number 3 was manually annotated 4 times for cluster C1.
- Start number 5 was manually annotated 1 time for cluster C1.
- Start number 6 was manually annotated 12 times for cluster C1.
- Start number 7 was manually annotated 1 time for cluster C1.
- Start number 8 was manually annotated 26 times for cluster C1.

### **Gene Information:**

Gene: BadAgartude\_11 Start: 3618, Stop: 4166, Start Num: 6

Candidate Starts for BadAgartude\_11:

(Start: 6 @3618 has 12 MA's), (10, 3672), (11, 3741), (13, 3786), (18, 3951), (19, 4038), (20, 4047),

Gene: BeanWater\_10 Start: 4425, Stop: 4973, Start Num: 6

Candidate Starts for BeanWater\_10:

(Start: 6 @4425 has 12 MA's), (10, 4479), (11, 4548), (13, 4593), (18, 4758), (19, 4845), (20, 4854),

Gene: BigCity\_17 Start: 6116, Stop: 6589, Start Num: 3

Candidate Starts for BigCity\_17:

(1, 6077), (Start: 3 @6116 has 4 MA's), (4, 6134), (9, 6179), (10, 6182), (12, 6269), (13, 6296), (15, 6437), (16, 6503), (17, 6509),

Gene: Bigswole\_17 Start: 5339, Stop: 6019, Start Num: 8

Candidate Starts for Bigswole\_17:

(2, 5294), (Start: 8 @5339 has 26 MA's), (9, 5381), (10, 5384), (12, 5471), (13, 5498), (15, 5639), (16, 5705), (18, 5771), (19, 5858), (20, 5867),

Gene: Blubba\_11 Start: 4390, Stop: 4998, Start Num: 8

Candidate Starts for Blubba\_11:

(2, 4345), (Start: 8 @4390 has 26 MA's), (9, 4432), (10, 4435), (13, 4549), (14, 4666), (15, 4690), (16, 4756), (18, 4822), (19, 4909), (20, 4918),

Gene: Bxz1\_15 Start: 4799, Stop: 5407, Start Num: 8

Candidate Starts for Bxz1\_15:

(2, 4754), (Start: 8 @4799 has 26 MA's), (9, 4841), (10, 4844), (12, 4931), (13, 4958), (15, 5099), (16, 5165), (18, 5231), (20, 5327),

Gene: Cali\_11 Start: 4579, Stop: 5130, Start Num: 5

Candidate Starts for Cali\_11:

(Start: 5 @4579 has 1 MA's), (Start: 6 @4582 has 12 MA's), (10, 4636), (11, 4705), (13, 4750), (18, 4915), (19, 5002), (20, 5011),

Gene: Cane17\_11 Start: 4390, Stop: 4998, Start Num: 8

Candidate Starts for Cane17\_11:

(2, 4345), (Start: 8 @4390 has 26 MA's), (9, 4432), (10, 4435), (13, 4549), (14, 4666), (15, 4690), (16, 4756), (18, 4822), (19, 4909), (20, 4918),

Gene: Caravan\_12 Start: 3547, Stop: 4155, Start Num: 8

Candidate Starts for Caravan\_12:

(2, 3502), (Start: 8 @3547 has 26 MA's), (9, 3589), (10, 3592), (12, 3679), (13, 3706), (15, 3847), (16, 3913), (18, 3979), (20, 4075),

Gene: CharlieB\_10 Start: 3443, Stop: 3991, Start Num: 6

Candidate Starts for CharlieB\_10:

(Start: 6 @3443 has 12 MA's), (10, 3497), (11, 3566), (13, 3611), (18, 3776), (19, 3863), (20, 3872),

Gene: Colt\_11 Start: 4396, Stop: 5004, Start Num: 8

Candidate Starts for Colt\_11:

(2, 4351), (Start: 8 @4396 has 26 MA's), (9, 4438), (10, 4441), (13, 4555), (15, 4696), (16, 4762), (18, 4828), (19, 4915), (20, 4924),

Gene: DTDevon\_14 Start: 4459, Stop: 5028, Start Num: 6

Candidate Starts for DTDevon\_14:

(Start: 6 @4459 has 12 MA's), (10, 4513), (11, 4582), (13, 4627), (18, 4792), (19, 4879), (20, 4888),

Gene: DeejaClivia\_9 Start: 2841, Stop: 3389, Start Num: 6

Candidate Starts for DeejaClivia\_9:

(Start: 6 @2841 has 12 MA's), (10, 2895), (11, 2964), (13, 3009), (18, 3174), (19, 3261), (20, 3270),

Gene: Delylah\_12 Start: 3547, Stop: 4155, Start Num: 8

Candidate Starts for Delylah\_12:

(2, 3502), (Start: 8 @3547 has 26 MA's), (9, 3589), (10, 3592), (12, 3679), (13, 3706), (15, 3847), (16, 3913), (18, 3979), (20, 4075),

Gene: Duckfeet\_11 Start: 3580, Stop: 4128, Start Num: 6

Candidate Starts for Duckfeet\_11:

(Start: 6 @3580 has 12 MA's), (10, 3634), (11, 3703), (13, 3748), (18, 3913), (19, 4000), (20, 4009),

Gene: EggyFarm\_17 Start: 6116, Stop: 6589, Start Num: 3

Candidate Starts for EggyFarm\_17:

(1, 6077), (Start: 3 @6116 has 4 MA's), (4, 6134), (9, 6179), (10, 6182), (12, 6269), (13, 6296), (15, 6437), (16, 6503), (17, 6509),

Gene: ErnieJ\_12 Start: 3611, Stop: 4219, Start Num: 8

Candidate Starts for ErnieJ\_12:

(2, 3566), (Start: 8 @3611 has 26 MA's), (9, 3653), (10, 3656), (12, 3743), (13, 3770), (15, 3911), (16, 3977), (18, 4043), (20, 4139),

Gene: FoxtrotP1\_12 Start: 4489, Stop: 5037, Start Num: 6

Candidate Starts for FoxtrotP1\_12:

(Start: 6 @4489 has 12 MA's), (10, 4543), (11, 4612), (13, 4657), (18, 4822), (19, 4909), (20, 4918),

Gene: FrayBell\_18 Start: 5596, Stop: 6276, Start Num: 8

Candidate Starts for FrayBell\_18:

(2, 5551), (Start: 8 @5596 has 26 MA's), (9, 5638), (10, 5641), (12, 5728), (13, 5755), (15, 5896), (16, 5962), (18, 6028), (19, 6115), (20, 6124),

Gene: Grasshills\_17 Start: 6116, Stop: 6589, Start Num: 3

Candidate Starts for Grasshills\_17:

(1, 6077), (Start: 3 @6116 has 4 MA's), (4, 6134), (9, 6179), (10, 6182), (12, 6269), (13, 6296), (15, 6437), (16, 6503), (17, 6509),

Gene: Halldule\_11 Start: 3597, Stop: 4145, Start Num: 6

Candidate Starts for Halldule\_11:

(Start: 6 @3597 has 12 MA's), (10, 3651), (11, 3720), (13, 3765), (18, 3930), (19, 4017), (20, 4026),

Gene: HyRo\_8 Start: 3742, Stop: 4320, Start Num: 6

Candidate Starts for HyRo\_8:

(Start: 6 @3742 has 12 MA's), (10, 3796), (11, 3865), (13, 3910), (16, 4039), (18, 4105), (19, 4192), (20, 4201),

Gene: I3\_16 Start: 5476, Stop: 6084, Start Num: 8

Candidate Starts for I3\_16:

(2, 5431), (Start: 8 @5476 has 26 MA's), (9, 5518), (10, 5521), (12, 5608), (13, 5635), (15, 5776), (16, 5842), (18, 5908), (19, 5995), (20, 6004),

Gene: InterFolia\_18 Start: 5593, Stop: 6273, Start Num: 8

Candidate Starts for InterFolia\_18:

(2, 5548), (Start: 8 @5593 has 26 MA's), (9, 5635), (10, 5638), (12, 5725), (13, 5752), (15, 5893), (16, 5959), (18, 6025), (19, 6112), (20, 6121),

Gene: Iota\_11 Start: 4332, Stop: 4943, Start Num: 7

Candidate Starts for Iota\_11:

(Start: 7 @4332 has 1 MA's), (9, 4377), (10, 4380), (12, 4467), (13, 4494), (15, 4635), (16, 4701), (18, 4767), (20, 4863),

Gene: JayJay\_15 Start: 4243, Stop: 4944, Start Num: 3

Candidate Starts for JayJay\_15:

(Start: 3 @4243 has 4 MA's), (4, 4261), (9, 4306), (10, 4309), (12, 4396), (13, 4423), (15, 4564), (16, 4630), (18, 4696), (19, 4783), (20, 4792),

Gene: Koguma\_11 Start: 3597, Stop: 4145, Start Num: 6

Candidate Starts for Koguma\_11:

(Start: 6 @3597 has 12 MA's), (10, 3651), (11, 3720), (13, 3765), (18, 3930), (19, 4017), (20, 4026),

Gene: LRRHood\_11 Start: 4582, Stop: 5130, Start Num: 6

Candidate Starts for LRRHood\_11:

(Start: 6 @4582 has 12 MA's), (10, 4636), (11, 4705), (13, 4750), (18, 4915), (19, 5002), (20, 5011),

Gene: Lethe\_15 Start: 4695, Stop: 5303, Start Num: 8

Candidate Starts for Lethe\_15:

(2, 4650), (Start: 8 @4695 has 26 MA's), (9, 4737), (10, 4740), (12, 4827), (13, 4854), (15, 4995), (16, 5061), (18, 5127), (20, 5223),

Gene: LinStu\_15 Start: 5242, Stop: 5715, Start Num: 3

Candidate Starts for LinStu\_15:

(Start: 3 @5242 has 4 MA's), (4, 5260), (9, 5305), (10, 5308), (12, 5395), (13, 5422), (15, 5563), (16, 5629), (17, 5635),

Gene: LolaVinca\_15 Start: 4699, Stop: 5379, Start Num: 8

Candidate Starts for LolaVinca\_15:

(2, 4654), (Start: 8 @4699 has 26 MA's), (9, 4741), (10, 4744), (12, 4831), (13, 4858), (15, 4999), (16, 5065), (18, 5131), (19, 5218), (20, 5227),

Gene: LookingGlass\_15 Start: 4754, Stop: 5254, Start Num: 8

Candidate Starts for LookingGlass\_15:

(2, 4709), (Start: 8 @4754 has 26 MA's), (9, 4796), (10, 4799), (12, 4886), (13, 4913), (18, 5078), (19, 5165), (20, 5174),

Gene: LordLeafolot\_18 Start: 5595, Stop: 6275, Start Num: 8

Candidate Starts for LordLeafolot\_18:

(2, 5550), (Start: 8 @5595 has 26 MA's), (9, 5637), (10, 5640), (12, 5727), (13, 5754), (15, 5895), (16, 5961), (18, 6027), (19, 6114), (20, 6123),

Gene: Lunareta\_14 Start: 4690, Stop: 5238, Start Num: 6

Candidate Starts for Lunareta\_14:

(Start: 6 @4690 has 12 MA's), (10, 4744), (11, 4813), (13, 4858), (18, 5023), (19, 5110), (20, 5119),

Gene: Mangeria\_16 Start: 5186, Stop: 5794, Start Num: 8

Candidate Starts for Mangeria\_16:

(2, 5141), (Start: 8 @5186 has 26 MA's), (9, 5228), (10, 5231), (12, 5318), (13, 5345), (15, 5486), (16, 5552), (18, 5618), (20, 5714),

Gene: Maturis\_15 Start: 4570, Stop: 5118, Start Num: 6

Candidate Starts for Maturis\_15:

(Start: 6 @4570 has 12 MA's), (10, 4624), (11, 4693), (13, 4738), (18, 4903), (19, 4990), (20, 4999),

Gene: MoMoMixon\_15 Start: 5028, Stop: 5636, Start Num: 8

Candidate Starts for MoMoMixon\_15:

(2, 4983), (Start: 8 @5028 has 26 MA's), (9, 5070), (10, 5073), (12, 5160), (13, 5187), (15, 5328), (16, 5394), (18, 5460), (20, 5556),

Gene: Montpel\_14 Start: 4690, Stop: 5238, Start Num: 6

Candidate Starts for Montpel\_14:

(Start: 6 @4690 has 12 MA's), (10, 4744), (11, 4813), (13, 4858), (18, 5023), (19, 5110), (20, 5119),

Gene: Nappy\_14 Start: 4422, Stop: 5102, Start Num: 8

Candidate Starts for Nappy\_14:

(2, 4377), (Start: 8 @4422 has 26 MA's), (9, 4464), (10, 4467), (12, 4554), (13, 4581), (15, 4722), (16, 4788), (18, 4854), (19, 4941), (20, 4950),

Gene: Naval22\_16 Start: 5028, Stop: 5636, Start Num: 8

Candidate Starts for Naval22\_16:

(2, 4983), (Start: 8 @5028 has 26 MA's), (9, 5070), (10, 5073), (12, 5160), (13, 5187), (15, 5328), (16, 5394), (18, 5460), (20, 5556),

Gene: Nidhogg\_15 Start: 5028, Stop: 5636, Start Num: 8

Candidate Starts for Nidhogg\_15:

(2, 4983), (Start: 8 @5028 has 26 MA's), (9, 5070), (10, 5073), (12, 5160), (13, 5187), (15, 5328), (16, 5394), (18, 5460), (20, 5556),

Gene: PharkleMinkus\_18 Start: 5596, Stop: 6276, Start Num: 8

Candidate Starts for PharkleMinkus\_18:

(2, 5551), (Start: 8 @5596 has 26 MA's), (9, 5638), (10, 5641), (12, 5728), (13, 5755), (15, 5896), (16, 5962), (18, 6028), (19, 6115), (20, 6124),

Gene: Phox\_11 Start: 4579, Stop: 5127, Start Num: 6

Candidate Starts for Phox\_11:

(Start: 6 @4579 has 12 MA's), (10, 4633), (11, 4702), (13, 4747), (18, 4912), (19, 4999), (20, 5008),

Gene: Pio\_16 Start: 5188, Stop: 5796, Start Num: 8

Candidate Starts for Pio\_16:

(2, 5143), (Start: 8 @5188 has 26 MA's), (9, 5230), (10, 5233), (12, 5320), (13, 5347), (15, 5488), (16, 5554), (18, 5620), (20, 5716),

Gene: Pupusa\_18 Start: 5595, Stop: 6275, Start Num: 8

Candidate Starts for Pupusa\_18:

(2, 5550), (Start: 8 @5595 has 26 MA's), (9, 5637), (10, 5640), (12, 5727), (13, 5754), (15, 5895), (16, 5961), (18, 6027), (19, 6114), (20, 6123),

Gene: QBert\_11 Start: 4454, Stop: 5143, Start Num: 6

Candidate Starts for QBert\_11:

(Start: 6 @4454 has 12 MA's), (10, 4508), (12, 4595), (13, 4622), (15, 4763), (16, 4829), (18, 4895), (19, 4982), (20, 4991),

Gene: Sauce\_15 Start: 4833, Stop: 5342, Start Num: 6

Candidate Starts for Sauce\_15:

(Start: 6 @4833 has 12 MA's), (10, 4887), (11, 4956), (13, 5001), (18, 5166), (20, 5262),

Gene: ScottMcG\_12 Start: 3987, Stop: 4634, Start Num: 8

Candidate Starts for ScottMcG\_12:

(2, 3942), (Start: 8 @3987 has 26 MA's), (9, 4029), (10, 4032), (12, 4119), (13, 4146), (15, 4287), (16, 4353), (18, 4419), (20, 4515),

Gene: Sebata\_15 Start: 5242, Stop: 5715, Start Num: 3

Candidate Starts for Sebata\_15:

(Start: 3 @5242 has 4 MA's), (4, 5260), (9, 5305), (10, 5308), (12, 5395), (13, 5422), (15, 5563), (16, 5629), (17, 5635),

Gene: Shaqnato\_11 Start: 3597, Stop: 4145, Start Num: 6

Candidate Starts for Shaqnato\_11:

(Start: 6 @3597 has 12 MA's), (10, 3651), (11, 3720), (13, 3765), (18, 3930), (19, 4017), (20, 4026),

Gene: Shelob\_13 Start: 4694, Stop: 5302, Start Num: 8

Candidate Starts for Shelob\_13:

(2, 4649), (Start: 8 @4694 has 26 MA's), (9, 4736), (10, 4739), (12, 4826), (13, 4853), (15, 4994), (16, 5060), (18, 5126), (20, 5222),

Gene: Specks\_16 Start: 4755, Stop: 5456, Start Num: 3

Candidate Starts for Specks\_16:

(Start: 3 @4755 has 4 MA's), (4, 4773), (9, 4818), (10, 4821), (12, 4908), (13, 4935), (15, 5076), (16, 5142), (18, 5208), (19, 5295), (20, 5304),

Gene: Spud\_16 Start: 5188, Stop: 5796, Start Num: 8

Candidate Starts for Spud\_16:

(2, 5143), (Start: 8 @5188 has 26 MA's), (9, 5230), (10, 5233), (12, 5320), (13, 5347), (15, 5488), (16, 5554), (18, 5620), (20, 5716),

Gene: Stubby\_10 Start: 4034, Stop: 4534, Start Num: 8

Candidate Starts for Stubby\_10:

(2, 3989), (Start: 8 @4034 has 26 MA's), (10, 4079), (11, 4148), (13, 4193), (18, 4358), (20, 4454),

Gene: Tainan\_18 Start: 5595, Stop: 6275, Start Num: 8

Candidate Starts for Tainan\_18:

(2, 5550), (Start: 8 @5595 has 26 MA's), (9, 5637), (10, 5640), (12, 5727), (13, 5754), (15, 5895), (16, 5961), (18, 6027), (19, 6114), (20, 6123),

Gene: Tonenili\_15 Start: 4513, Stop: 4962, Start Num: 8

Candidate Starts for Tonenili\_15:

(Start: 8 @4513 has 26 MA's), (9, 4552), (10, 4555), (12, 4642), (13, 4669), (15, 4810), (16, 4876), (17, 4882),

Gene: Tyke\_15 Start: 4664, Stop: 5272, Start Num: 8

Candidate Starts for Tyke\_15:

(2, 4619), (Start: 8 @4664 has 26 MA's), (9, 4706), (10, 4709), (12, 4796), (13, 4823), (15, 4964), (16, 5030), (18, 5096), (20, 5192),

Gene: Vortrix\_15 Start: 4547, Stop: 4996, Start Num: 8

Candidate Starts for Vortrix\_15:

(Start: 8 @4547 has 26 MA's), (9, 4586), (10, 4589), (12, 4676), (13, 4703), (15, 4844), (16, 4910), (17, 4916),