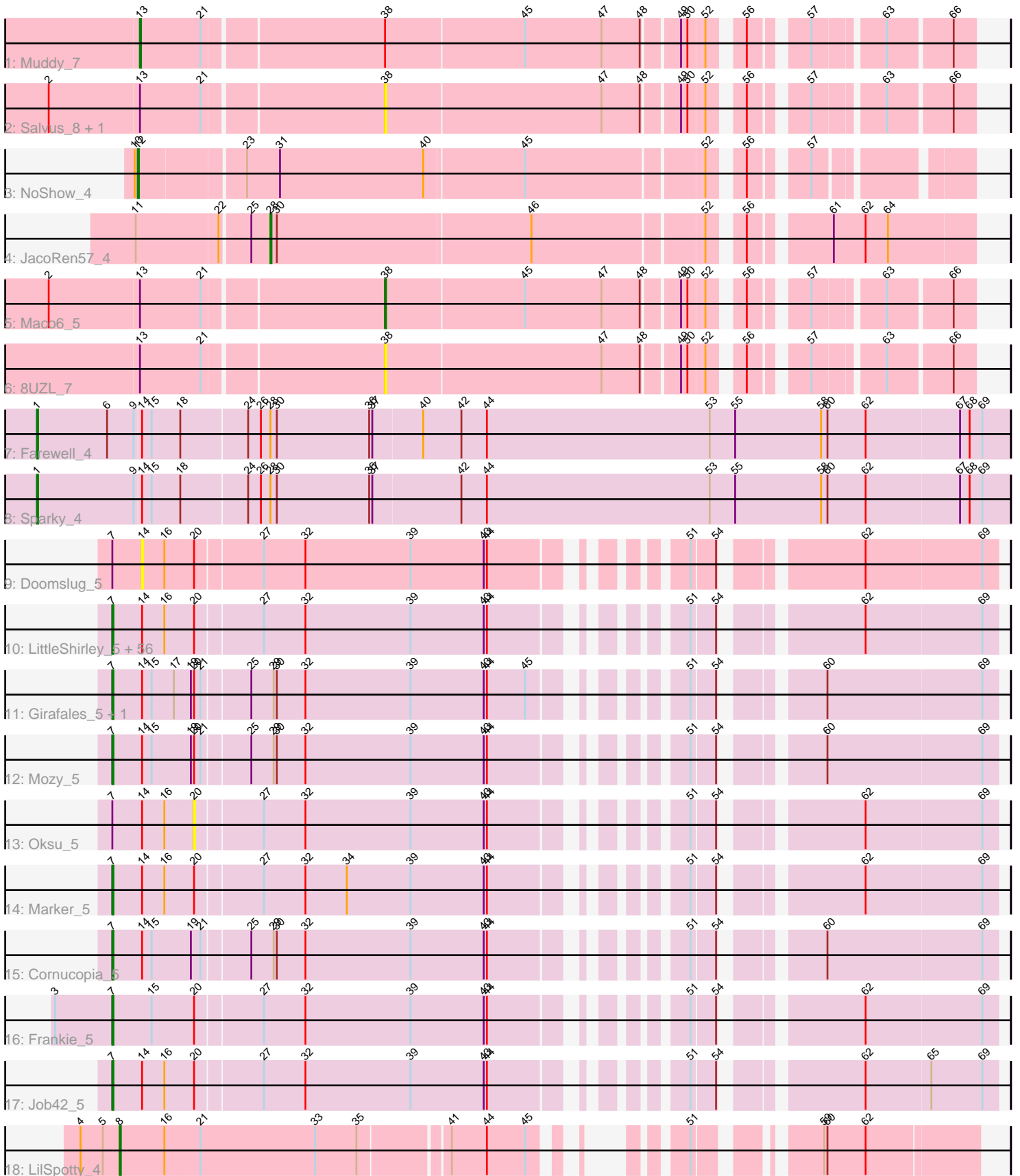


Pham 294667



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 294667 Report

This analysis was run 04/18/26 on database version 643.

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 294667 has 76 members, 9 are drafts.

Phages represented in each track:

- Track 1 : Muddy\_7
- Track 2 : Salvus\_8, LongHai\_8
- Track 3 : NoShow\_4
- Track 4 : JacoRen57\_4
- Track 5 : Maco6\_5
- Track 6 : 8UZL\_7
- Track 7 : Farewell\_4
- Track 8 : Sparky\_4
- Track 9 : Doomslug\_5
- Track 10 : LittleShirley\_5, UncleRicky\_5, DocMcStuffins\_5, Bobi\_5, Flathead\_5, JalFarm20\_5, Pollywog\_5, Beakin\_5, MulchExplorer\_5, Madiba\_5, Leozinho\_5, Tchotchke\_5, Spikelee\_5, Brookers\_5, Lucia\_5, DaWorst\_5, Sarma624\_5, Plumbus\_5, Awesomesauce\_5, ChickenDinner\_5, Alexphander\_5, Kimberlium\_5, Peridot\_5, Coco12\_5, Rialto\_5, DosHalletts\_5, Brushbloom\_5, Slim\_5, DirtMcgirt\_5, Drago\_5, BigPhil\_5, Hegedechwinu\_5, Stap\_5, Juice456\_5, Piper2020\_5, Kingsley\_5, Ramsey\_5, TootsiePop\_5, Lorde\_5, RockyHorror\_5, Cerasum\_5, OwlsT2W\_5, Boomer\_5, Mova\_5, Misha28\_5, Seagreen\_5, Enby\_5, SimranZ1\_5, BuzzLyseyear\_5, Beanstalk\_5, Starcevich\_5, Totinger\_5, Squirty\_5, Emmaloid\_5, Velveteen\_5, Aloeri\_5, Tootsieroll\_5
- Track 11 : Girafales\_5, Quico\_5
- Track 12 : Mozy\_5
- Track 13 : Oksu\_5
- Track 14 : Marker\_5
- Track 15 : Cornucopia\_5
- Track 16 : Frankie\_5
- Track 17 : Job42\_5
- Track 18 : LilSpotty\_4

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

The start number called the most often in the published annotations is 7, it was called in 60 of the 67 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alexphander\_5, Aloeri\_5, Awesomesauce\_5, Beakin\_5, Beanstalk\_5, BigPhil\_5, Bobi\_5, Boomer\_5, Brookers\_5, Brushbloom\_5, BuzzLyseyear\_5, Cerasum\_5, ChickenDinner\_5, Coco12\_5, Cornucopia\_5, DaWorst\_5, DirtMcgirt\_5, DocMcStuffins\_5, DosHalletts\_5, Drago\_5, Emmaloid\_5, Enby\_5, Flathead\_5, Frankie\_5, Girafales\_5, Hegedechwinu\_5, JalFarm20\_5, Job42\_5, Juice456\_5, Kimberlium\_5, Kingsley\_5, Leozinho\_5, LittleShirley\_5, Lorde\_5, Lucia\_5, Madiba\_5, Marker\_5, Misha28\_5, Mova\_5, Mozy\_5, MulchExplorer\_5, OwlsT2W\_5, Peridot\_5, Piper2020\_5, Plumbus\_5, Pollywog\_5, Quico\_5, Ramsey\_5, Rialto\_5, RockyHorror\_5, Sarma624\_5, Seagreen\_5, SimranZ1\_5, Slim\_5, Spikelee\_5, Squirty\_5, Stap\_5, Starcevich\_5, Tchotchke\_5, TootsiePop\_5, Tootsieroll\_5, Totinger\_5, UncleRicky\_5, Velveteen\_5,

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

- Doomslug\_5, Oksu\_5,

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

- 8UZL\_7, Farewell\_4, JacoRen57\_4, LilSpotty\_4, LongHai\_8, Maco6\_5, Muddy\_7, NoShow\_4, Salvus\_8, Sparky\_4,

### Summary by start number:

Start 1:

- Found in 2 of 76 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 2 of 67
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Farewell\_4 (AF), Sparky\_4 (AF),

Start 7:

- Found in 66 of 76 ( 86.8% ) of genes in pham
- Manual Annotations of this start: 60 of 67
- Called 97.0% of time when present
- Phage (with cluster) where this start called: Alexphander\_5 (F1), Aloeri\_5 (F1), Awesomesauce\_5 (F1), Beakin\_5 (F1), Beanstalk\_5 (F1), BigPhil\_5 (F1), Bobi\_5 (F1), Boomer\_5 (F1), Brookers\_5 (F1), Brushbloom\_5 (F1), BuzzLyseyear\_5 (F1), Cerasum\_5 (F1), ChickenDinner\_5 (F1), Coco12\_5 (F1), Cornucopia\_5 (F1), DaWorst\_5 (F1), DirtMcgirt\_5 (F1), DocMcStuffins\_5 (F1), DosHalletts\_5 (F1), Drago\_5 (F1), Emmaloid\_5 (F1), Enby\_5 (F1), Flathead\_5 (F1), Frankie\_5 (F1), Girafales\_5 (F1), Hegedechwinu\_5 (F1), JalFarm20\_5 (F1), Job42\_5 (F1), Juice456\_5 (F1), Kimberlium\_5 (F1), Kingsley\_5 (F1), Leozinho\_5 (F1), LittleShirley\_5 (F1), Lorde\_5 (F1), Lucia\_5 (F1), Madiba\_5 (F1), Marker\_5 (F1), Misha28\_5 (F1), Mova\_5 (F1), Mozy\_5 (F1), MulchExplorer\_5 (F1), OwlsT2W\_5 (F1), Peridot\_5 (F1), Piper2020\_5 (F1), Plumbus\_5 (F1), Pollywog\_5 (F1), Quico\_5 (F1), Ramsey\_5 (F1), Rialto\_5 (F1), RockyHorror\_5 (F1), Sarma624\_5 (F1), Seagreen\_5 (F1), SimranZ1\_5 (F1), Slim\_5 (F1), Spikelee\_5 (F1), Squirty\_5 (F3), Stap\_5 (F1), Starcevich\_5 (F1), Tchotchke\_5 (F1), TootsiePop\_5 (F1), Tootsieroll\_5 (F1), Totinger\_5 (F1), UncleRicky\_5 (F1), Velveteen\_5 (F1),

Start 8:

- Found in 1 of 76 ( 1.3% ) of genes in pham

- Manual Annotations of this start: 1 of 67
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LilSpotty\_4 (singleton),

Start 12:

- Found in 1 of 76 ( 1.3% ) of genes in pham
- Manual Annotations of this start: 1 of 67
- Called 100.0% of time when present
- Phage (with cluster) where this start called: NoShow\_4 (AB),

Start 13:

- Found in 5 of 76 ( 6.6% ) of genes in pham
- Manual Annotations of this start: 1 of 67
- Called 20.0% of time when present
- Phage (with cluster) where this start called: Muddy\_7 (AB),

Start 14:

- Found in 67 of 76 ( 88.2% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.5% of time when present
- Phage (with cluster) where this start called: Doomslug\_5 (F),

Start 20:

- Found in 65 of 76 ( 85.5% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.5% of time when present
- Phage (with cluster) where this start called: Oksu\_5 (F1),

Start 28:

- Found in 3 of 76 ( 3.9% ) of genes in pham
- Manual Annotations of this start: 1 of 67
- Called 33.3% of time when present
- Phage (with cluster) where this start called: JacoRen57\_4 (AB),

Start 38:

- Found in 5 of 76 ( 6.6% ) of genes in pham
- Manual Annotations of this start: 1 of 67
- Called 80.0% of time when present
- Phage (with cluster) where this start called: 8UZL\_7 (AB), LongHai\_8 (AB), Maco6\_5 (AB), Salvus\_8 (AB),

### **Summary by clusters:**

There are 6 clusters represented in this pham: F1, singleton, AB, F, AF, F3,

Info for manual annotations of cluster AB:

- Start number 12 was manually annotated 1 time for cluster AB.
- Start number 13 was manually annotated 1 time for cluster AB.
- Start number 28 was manually annotated 1 time for cluster AB.
- Start number 38 was manually annotated 1 time for cluster AB.

Info for manual annotations of cluster AF:

- Start number 1 was manually annotated 2 times for cluster AF.

Info for manual annotations of cluster F1:

•Start number 7 was manually annotated 59 times for cluster F1.

Info for manual annotations of cluster F3:

•Start number 7 was manually annotated 1 time for cluster F3.

**Gene Information:**

Gene: 8UZL\_7 Start: 5062, Stop: 5550, Start Num: 38

Candidate Starts for 8UZL\_7:

(Start: 13 @4843 has 1 MA's), (21, 4900), (Start: 38 @5062 has 1 MA's), (47, 5263), (48, 5299), (49, 5329), (50, 5335), (52, 5350), (56, 5374), (57, 5416), (63, 5473), (66, 5530),

Gene: Alexphander\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Alexphander\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Aloeri\_5 Start: 3607, Stop: 4332, Start Num: 7

Candidate Starts for Aloeri\_5:

(Start: 7 @3607 has 60 MA's), (14, 3634), (16, 3655), (20, 3682), (27, 3742), (32, 3781), (39, 3880), (43, 3949), (44, 3952), (51, 4081), (54, 4102), (62, 4210), (69, 4318),

Gene: Awesomesauce\_5 Start: 3607, Stop: 4332, Start Num: 7

Candidate Starts for Awesomesauce\_5:

(Start: 7 @3607 has 60 MA's), (14, 3634), (16, 3655), (20, 3682), (27, 3742), (32, 3781), (39, 3880), (43, 3949), (44, 3952), (51, 4081), (54, 4102), (62, 4210), (69, 4318),

Gene: Beakin\_5 Start: 3607, Stop: 4332, Start Num: 7

Candidate Starts for Beakin\_5:

(Start: 7 @3607 has 60 MA's), (14, 3634), (16, 3655), (20, 3682), (27, 3742), (32, 3781), (39, 3880), (43, 3949), (44, 3952), (51, 4081), (54, 4102), (62, 4210), (69, 4318),

Gene: Beanstalk\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Beanstalk\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: BigPhil\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for BigPhil\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Bobi\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Bobi\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Boomer\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Boomer\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Brookers\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Brookers\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Brushbloom\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Brushbloom\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: BuzzLyseyear\_5 Start: 3603, Stop: 4328, Start Num: 7

Candidate Starts for BuzzLyseyear\_5:

(Start: 7 @3603 has 60 MA's), (14, 3630), (16, 3651), (20, 3678), (27, 3738), (32, 3777), (39, 3876), (43, 3945), (44, 3948), (51, 4077), (54, 4098), (62, 4206), (69, 4314),

Gene: Cerasum\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Cerasum\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: ChickenDinner\_5 Start: 3607, Stop: 4332, Start Num: 7

Candidate Starts for ChickenDinner\_5:

(Start: 7 @3607 has 60 MA's), (14, 3634), (16, 3655), (20, 3682), (27, 3742), (32, 3781), (39, 3880), (43, 3949), (44, 3952), (51, 4081), (54, 4102), (62, 4210), (69, 4318),

Gene: Coco12\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Coco12\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Cornucopia\_5 Start: 3606, Stop: 4331, Start Num: 7

Candidate Starts for Cornucopia\_5:

(Start: 7 @3606 has 60 MA's), (14, 3633), (15, 3642), (19, 3678), (21, 3687), (25, 3729), (29, 3750), (30, 3753), (32, 3780), (39, 3879), (43, 3948), (44, 3951), (51, 4080), (54, 4101), (60, 4173), (69, 4317),

Gene: DaWorst\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for DaWorst\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: DirtMcgirt\_5 Start: 3605, Stop: 4330, Start Num: 7

Candidate Starts for DirtMcgirt\_5:

(Start: 7 @3605 has 60 MA's), (14, 3632), (16, 3653), (20, 3680), (27, 3740), (32, 3779), (39, 3878), (43, 3947), (44, 3950), (51, 4079), (54, 4100), (62, 4208), (69, 4316),

Gene: DocMcStuffins\_5 Start: 3607, Stop: 4332, Start Num: 7

Candidate Starts for DocMcStuffins\_5:

(Start: 7 @3607 has 60 MA's), (14, 3634), (16, 3655), (20, 3682), (27, 3742), (32, 3781), (39, 3880), (43, 3949), (44, 3952), (51, 4081), (54, 4102), (62, 4210), (69, 4318),

Gene: Doomslug\_5 Start: 3631, Stop: 4329, Start Num: 14

Candidate Starts for Doomslug\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: DosHalletts\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for DosHalletts\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Drago\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Drago\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Emmaloid\_5 Start: 3605, Stop: 4330, Start Num: 7

Candidate Starts for Emmaloid\_5:

(Start: 7 @3605 has 60 MA's), (14, 3632), (16, 3653), (20, 3680), (27, 3740), (32, 3779), (39, 3878), (43, 3947), (44, 3950), (51, 4079), (54, 4100), (62, 4208), (69, 4316),

Gene: Enby\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Enby\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Farewell\_4 Start: 3759, Stop: 4664, Start Num: 1

Candidate Starts for Farewell\_4:

(Start: 1 @3759 has 2 MA's), (6, 3825), (9, 3849), (14, 3855), (15, 3864), (18, 3891), (24, 3951), (26, 3963), (Start: 28 @3972 has 1 MA's), (30, 3978), (36, 4065), (37, 4068), (40, 4113), (42, 4149), (44, 4173), (53, 4383), (55, 4407), (58, 4488), (60, 4494), (62, 4530), (67, 4617), (68, 4626), (69, 4638),

Gene: Flathead\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Flathead\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Frankie\_5 Start: 3798, Stop: 4523, Start Num: 7

Candidate Starts for Frankie\_5:

(3, 3744), (Start: 7 @3798 has 60 MA's), (15, 3834), (20, 3873), (27, 3933), (32, 3972), (39, 4071), (43, 4140), (44, 4143), (51, 4272), (54, 4293), (62, 4401), (69, 4509),

Gene: Girafales\_5 Start: 3602, Stop: 4327, Start Num: 7

Candidate Starts for Girafales\_5:

(Start: 7 @3602 has 60 MA's), (14, 3629), (15, 3638), (17, 3659), (19, 3674), (20, 3677), (21, 3683), (25, 3725), (29, 3746), (30, 3749), (32, 3776), (39, 3875), (43, 3944), (44, 3947), (45, 3983), (51, 4076), (54, 4097), (60, 4169), (69, 4313),

Gene: Hegedechwinu\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Hegedechwinu\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: JacoRen57\_4 Start: 3951, Stop: 4562, Start Num: 28

Candidate Starts for JacoRen57\_4:

(11, 3834), (22, 3909), (25, 3933), (Start: 28 @3951 has 1 MA's), (30, 3957), (46, 4191), (52, 4344), (56, 4368), (61, 4431), (62, 4461), (64, 4482),

Gene: JalFarm20\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for JalFarm20\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Job42\_5 Start: 3603, Stop: 4328, Start Num: 7

Candidate Starts for Job42\_5:

(Start: 7 @3603 has 60 MA's), (14, 3630), (16, 3651), (20, 3678), (27, 3738), (32, 3777), (39, 3876), (43, 3945), (44, 3948), (51, 4077), (54, 4098), (62, 4206), (65, 4266), (69, 4314),

Gene: Juice456\_5 Start: 3605, Stop: 4330, Start Num: 7

Candidate Starts for Juice456\_5:

(Start: 7 @3605 has 60 MA's), (14, 3632), (16, 3653), (20, 3680), (27, 3740), (32, 3779), (39, 3878), (43, 3947), (44, 3950), (51, 4079), (54, 4100), (62, 4208), (69, 4316),

Gene: Kimberlium\_5 Start: 3605, Stop: 4330, Start Num: 7

Candidate Starts for Kimberlium\_5:

(Start: 7 @3605 has 60 MA's), (14, 3632), (16, 3653), (20, 3680), (27, 3740), (32, 3779), (39, 3878), (43, 3947), (44, 3950), (51, 4079), (54, 4100), (62, 4208), (69, 4316),

Gene: Kingsley\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Kingsley\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Leozinho\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Leozinho\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: LilSpotty\_4 Start: 3229, Stop: 3888, Start Num: 8

Candidate Starts for LilSpotty\_4:

(4, 3193), (5, 3214), (Start: 8 @3229 has 1 MA's), (16, 3271), (21, 3304), (33, 3412), (35, 3451), (41, 3529), (44, 3562), (45, 3598), (51, 3664), (59, 3748), (60, 3751), (62, 3787),

Gene: LittleShirley\_5 Start: 3605, Stop: 4330, Start Num: 7

Candidate Starts for LittleShirley\_5:

(Start: 7 @3605 has 60 MA's), (14, 3632), (16, 3653), (20, 3680), (27, 3740), (32, 3779), (39, 3878), (43, 3947), (44, 3950), (51, 4079), (54, 4100), (62, 4208), (69, 4316),

Gene: LongHai\_8 Start: 5367, Stop: 5855, Start Num: 38

Candidate Starts for LongHai\_8:

(2, 5064), (Start: 13 @5148 has 1 MA's), (21, 5205), (Start: 38 @5367 has 1 MA's), (47, 5568), (48, 5604), (49, 5634), (50, 5640), (52, 5655), (56, 5679), (57, 5721), (63, 5778), (66, 5835),

Gene: Lorde\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Lorde\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Lucia\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Lucia\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Maco6\_5 Start: 4321, Stop: 4809, Start Num: 38

Candidate Starts for Maco6\_5:

(2, 4018), (Start: 13 @4102 has 1 MA's), (21, 4159), (Start: 38 @4321 has 1 MA's), (45, 4450), (47, 4522), (48, 4558), (49, 4588), (50, 4594), (52, 4609), (56, 4633), (57, 4675), (63, 4732), (66, 4789),

Gene: Madiba\_5 Start: 3603, Stop: 4328, Start Num: 7

Candidate Starts for Madiba\_5:

(Start: 7 @3603 has 60 MA's), (14, 3630), (16, 3651), (20, 3678), (27, 3738), (32, 3777), (39, 3876), (43, 3945), (44, 3948), (51, 4077), (54, 4098), (62, 4206), (69, 4314),

Gene: Marker\_5 Start: 3603, Stop: 4328, Start Num: 7

Candidate Starts for Marker\_5:

(Start: 7 @3603 has 60 MA's), (14, 3630), (16, 3651), (20, 3678), (27, 3738), (32, 3777), (34, 3816), (39, 3876), (43, 3945), (44, 3948), (51, 4077), (54, 4098), (62, 4206), (69, 4314),

Gene: Misha28\_5 Start: 3607, Stop: 4332, Start Num: 7

Candidate Starts for Misha28\_5:

(Start: 7 @3607 has 60 MA's), (14, 3634), (16, 3655), (20, 3682), (27, 3742), (32, 3781), (39, 3880), (43, 3949), (44, 3952), (51, 4081), (54, 4102), (62, 4210), (69, 4318),

Gene: Mova\_5 Start: 3605, Stop: 4330, Start Num: 7

Candidate Starts for Mova\_5:

(Start: 7 @3605 has 60 MA's), (14, 3632), (16, 3653), (20, 3680), (27, 3740), (32, 3779), (39, 3878), (43, 3947), (44, 3950), (51, 4079), (54, 4100), (62, 4208), (69, 4316),

Gene: Mozy\_5 Start: 3603, Stop: 4328, Start Num: 7

Candidate Starts for Mozy\_5:

(Start: 7 @3603 has 60 MA's), (14, 3630), (15, 3639), (19, 3675), (20, 3678), (21, 3684), (25, 3726), (29, 3747), (30, 3750), (32, 3777), (39, 3876), (43, 3945), (44, 3948), (51, 4077), (54, 4098), (60, 4170), (69, 4314),

Gene: Muddy\_7 Start: 5056, Stop: 5763, Start Num: 13

Candidate Starts for Muddy\_7:

(Start: 13 @5056 has 1 MA's), (21, 5113), (Start: 38 @5275 has 1 MA's), (45, 5404), (47, 5476), (48, 5512), (49, 5542), (50, 5548), (52, 5563), (56, 5587), (57, 5629), (63, 5686), (66, 5743),

Gene: MulchExplorer\_5 Start: 3605, Stop: 4330, Start Num: 7

Candidate Starts for MulchExplorer\_5:

(Start: 7 @3605 has 60 MA's), (14, 3632), (16, 3653), (20, 3680), (27, 3740), (32, 3779), (39, 3878), (43, 3947), (44, 3950), (51, 4079), (54, 4100), (62, 4208), (69, 4316),

Gene: NoShow\_4 Start: 3865, Stop: 4563, Start Num: 12

Candidate Starts for NoShow\_4:

(10, 3862), (Start: 12 @3865 has 1 MA's), (23, 3958), (31, 3988), (40, 4123), (45, 4213), (52, 4372), (56, 4396), (57, 4438),

Gene: Oksu\_5 Start: 3680, Stop: 4330, Start Num: 20

Candidate Starts for Oksu\_5:

(Start: 7 @3605 has 60 MA's), (14, 3632), (16, 3653), (20, 3680), (27, 3740), (32, 3779), (39, 3878), (43, 3947), (44, 3950), (51, 4079), (54, 4100), (62, 4208), (69, 4316),

Gene: OwlsT2W\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for OwlsT2W\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Peridot\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Peridot\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Piper2020\_5 Start: 3607, Stop: 4332, Start Num: 7

Candidate Starts for Piper2020\_5:

(Start: 7 @3607 has 60 MA's), (14, 3634), (16, 3655), (20, 3682), (27, 3742), (32, 3781), (39, 3880), (43, 3949), (44, 3952), (51, 4081), (54, 4102), (62, 4210), (69, 4318),

Gene: Plumbus\_5 Start: 3605, Stop: 4330, Start Num: 7

Candidate Starts for Plumbus\_5:

(Start: 7 @3605 has 60 MA's), (14, 3632), (16, 3653), (20, 3680), (27, 3740), (32, 3779), (39, 3878), (43, 3947), (44, 3950), (51, 4079), (54, 4100), (62, 4208), (69, 4316),

Gene: Pollywog\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Pollywog\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Quico\_5 Start: 3602, Stop: 4327, Start Num: 7

Candidate Starts for Quico\_5:

(Start: 7 @3602 has 60 MA's), (14, 3629), (15, 3638), (17, 3659), (19, 3674), (20, 3677), (21, 3683), (25, 3725), (29, 3746), (30, 3749), (32, 3776), (39, 3875), (43, 3944), (44, 3947), (45, 3983), (51, 4076), (54, 4097), (60, 4169), (69, 4313),

Gene: Ramsey\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Ramsey\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Rialto\_5 Start: 3605, Stop: 4330, Start Num: 7

Candidate Starts for Rialto\_5:

(Start: 7 @3605 has 60 MA's), (14, 3632), (16, 3653), (20, 3680), (27, 3740), (32, 3779), (39, 3878), (43, 3947), (44, 3950), (51, 4079), (54, 4100), (62, 4208), (69, 4316),

Gene: RockyHorror\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for RockyHorror\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Salvus\_8 Start: 5367, Stop: 5855, Start Num: 38

Candidate Starts for Salvus\_8:

(2, 5064), (Start: 13 @5148 has 1 MA's), (21, 5205), (Start: 38 @5367 has 1 MA's), (47, 5568), (48, 5604), (49, 5634), (50, 5640), (52, 5655), (56, 5679), (57, 5721), (63, 5778), (66, 5835),

Gene: Sarma624\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Sarma624\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Seagreen\_5 Start: 3605, Stop: 4330, Start Num: 7

Candidate Starts for Seagreen\_5:

(Start: 7 @3605 has 60 MA's), (14, 3632), (16, 3653), (20, 3680), (27, 3740), (32, 3779), (39, 3878), (43, 3947), (44, 3950), (51, 4079), (54, 4100), (62, 4208), (69, 4316),

Gene: SimranZ1\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for SimranZ1\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Slim\_5 Start: 3605, Stop: 4330, Start Num: 7

Candidate Starts for Slim\_5:

(Start: 7 @3605 has 60 MA's), (14, 3632), (16, 3653), (20, 3680), (27, 3740), (32, 3779), (39, 3878), (43, 3947), (44, 3950), (51, 4079), (54, 4100), (62, 4208), (69, 4316),

Gene: Sparky\_4 Start: 3760, Stop: 4665, Start Num: 1

Candidate Starts for Sparky\_4:

(Start: 1 @3760 has 2 MA's), (9, 3850), (14, 3856), (15, 3865), (18, 3892), (24, 3952), (26, 3964), (Start: 28 @3973 has 1 MA's), (30, 3979), (36, 4066), (37, 4069), (42, 4150), (44, 4174), (53, 4384), (55, 4408), (58, 4489), (60, 4495), (62, 4531), (67, 4618), (68, 4627), (69, 4639),

Gene: Spikelee\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Spikelee\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Squirty\_5 Start: 3603, Stop: 4328, Start Num: 7

Candidate Starts for Squirty\_5:

(Start: 7 @3603 has 60 MA's), (14, 3630), (16, 3651), (20, 3678), (27, 3738), (32, 3777), (39, 3876), (43, 3945), (44, 3948), (51, 4077), (54, 4098), (62, 4206), (69, 4314),

Gene: Stap\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Stap\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Starcevich\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Starcevich\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Tchotchke\_5 Start: 3605, Stop: 4330, Start Num: 7

Candidate Starts for Tchotchke\_5:

(Start: 7 @3605 has 60 MA's), (14, 3632), (16, 3653), (20, 3680), (27, 3740), (32, 3779), (39, 3878), (43, 3947), (44, 3950), (51, 4079), (54, 4100), (62, 4208), (69, 4316),

Gene: TootsiePop\_5 Start: 3607, Stop: 4332, Start Num: 7

Candidate Starts for TootsiePop\_5:

(Start: 7 @3607 has 60 MA's), (14, 3634), (16, 3655), (20, 3682), (27, 3742), (32, 3781), (39, 3880), (43, 3949), (44, 3952), (51, 4081), (54, 4102), (62, 4210), (69, 4318),

Gene: Tootsieroll\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Tootsieroll\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Totinger\_5 Start: 3605, Stop: 4330, Start Num: 7

Candidate Starts for Totinger\_5:

(Start: 7 @3605 has 60 MA's), (14, 3632), (16, 3653), (20, 3680), (27, 3740), (32, 3779), (39, 3878), (43, 3947), (44, 3950), (51, 4079), (54, 4100), (62, 4208), (69, 4316),

Gene: UncleRicky\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for UncleRicky\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),

Gene: Velveteen\_5 Start: 3604, Stop: 4329, Start Num: 7

Candidate Starts for Velveteen\_5:

(Start: 7 @3604 has 60 MA's), (14, 3631), (16, 3652), (20, 3679), (27, 3739), (32, 3778), (39, 3877), (43, 3946), (44, 3949), (51, 4078), (54, 4099), (62, 4207), (69, 4315),