

# Pham 85357



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 85357 Report

This analysis was run 04/28/24 on database version 559.

Pham number 85357 has 85 members, 6 are drafts.

Phages represented in each track:

- Track 1 : Chargerpower\_76
- Track 2 : TinyTimmy\_77, Snape\_79, Ebony\_79, Munch\_79, Et2Brutus\_78, Flaverint\_80, Aneem\_80, Gilberta\_76, MaCh\_79, Mabel\_79, Mulciber\_77, Fibonacci\_78, Salz\_74, Joselito\_78, Insomnia\_77, Orange\_79, Jabith\_78, Hutc2\_75, Petersenfast\_73, Lucivia\_80, Timothy\_79, Sham4\_75, Bud\_74
- Track 3 : Bachome\_77
- Track 4 : Jeeves\_81
- Track 5 : Gail\_80
- Track 6 : SororFago\_79
- Track 7 : Lökk\_72, BobSwaget\_71, Rachaly\_74
- Track 8 : NaSiaTalie\_77, Flare16\_77
- Track 9 : TarsusIV\_76
- Track 10 : Benvolio\_75, Echild\_78
- Track 11 : Trixie\_77
- Track 12 : ArcherNM\_71
- Track 13 : Centaur\_77
- Track 14 : Deloris\_77, BengiVuitton\_77
- Track 15 : ChipMunk\_78
- Track 16 : SnapTap\_77, SweetiePie\_77, Power\_77, Georgie2\_79
- Track 17 : VA6\_77, AN3\_79
- Track 18 : Larenn\_74
- Track 19 : CRB1\_79
- Track 20 : Buggy\_79, Whabigail7\_77, Leviathan\_79, Dignity\_79, LilTurb\_78, Smeagan\_80, Jerm\_79
- Track 21 : LadyBird\_81
- Track 22 : Duplo\_79, DBQu4n\_79, Kerberos\_79, Tomathan\_79
- Track 23 : Baehexic\_76, Updawg\_78, Equemioh13\_77, WideWale\_78
- Track 24 : First\_0078, 20ES\_79
- Track 25 : Acolyte\_70
- Track 26 : AbbyPaige\_79, Turbido\_78
- Track 27 : Agape74\_79
- Track 28 : Malec\_75
- Track 29 : JoshKayV\_78
- Track 30 : AnnaL29\_77, Loser\_79
- Track 31 : RedRock\_76
- Track 32 : XianYue\_74
- Track 33 : NicoleTera\_74

- Track 34 : Kalpine\_77
- Track 35 : Miko\_72
- Track 36 : StarStuff\_79, Pomar16\_79
- Track 37 : MiculUcigas\_77
- Track 38 : EvilGenius\_77

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

The start number called the most often in the published annotations is 21, it was called in 53 of the 79 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- AN3\_79, AbbyPaige\_79, Agape74\_79, Aneem\_80, ArcherNM\_71, Bachome\_77, Baehexic\_76, BengiVuitton\_77, Bud\_74, Buggy\_79, Centaur\_77, Chargerpower\_76, ChipMunk\_78, Deloris\_77, Dignity\_79, Ebony\_79, Equemioh13\_77, Et2Brutus\_78, Fibonacci\_78, Flare16\_77, Flaverint\_80, Georgie2\_79, Gilberta\_76, Hutc2\_75, Insomnia\_77, Jabith\_78, Jerm\_79, Joselito\_78, JoshKayV\_78, Larenn\_74, Leviathan\_79, LilTurb\_78, Lucivia\_80, MaCh\_79, Mabel\_79, Malec\_75, MiculUcigas\_77, Mulciber\_77, Munch\_79, NaSiaTalie\_77, Orange\_79, Petersenfast\_73, Power\_77, Salz\_74, Sham4\_75, Smeagan\_80, SnapTap\_77, Snape\_79, SweetiePie\_77, Timothy\_79, TinyTimmy\_77, Turbido\_78, Updawg\_78, VA6\_77, Whabigail7\_77, WideWale\_78,

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

- EvilGenius\_77,

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

- 20ES\_79, Acolyte\_70, AnnaL29\_77, Benvolio\_75, BobSwaget\_71, CRB1\_79, DBQu4n\_79, Duplo\_79, Echild\_78, First\_0078, Gail\_80, Jeeves\_81, Kalpine\_77, Kerberos\_79, LadyBird\_81, Lokk\_72, Loser\_79, Miko\_72, NicoleTera\_74, Pomar16\_79, Rachaly\_74, RedRock\_76, SororFago\_79, StarStuff\_79, TarsusIV\_76, Tomathan\_79, Trixie\_77, XianYue\_74,

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

Start 16:

- Found in 27 of 85 ( 31.8% ) of genes in pham
- Manual Annotations of this start: 1 of 79
- Called 3.7% of time when present
- Phage (with cluster) where this start called: Gail\_80 (A14),

Start 18:

- Found in 2 of 85 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 2 of 79
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jeeves\_81 (A14), SororFago\_79 (A14),

Start 19:

- Found in 3 of 85 ( 3.5% ) of genes in pham
- Manual Annotations of this start: 1 of 79

- Called 33.3% of time when present
- Phage (with cluster) where this start called: EvilGenius\_77 (A2),

Start 21:

- Found in 57 of 85 ( 67.1% ) of genes in pham
- Manual Annotations of this start: 53 of 79
- Called 98.2% of time when present
- Phage (with cluster) where this start called: AN3\_79 (A2), AbbyPaige\_79 (A2), Agape74\_79 (A2), Aneem\_80 (A11), ArcherNM\_71 (A2), Bachome\_77 (A11), Baehexic\_76 (A2), BengiVuitton\_77 (A2), Bud\_74 (A11), Buggy\_79 (A2), Centaur\_77 (A2), Chargerpower\_76 (A), ChipMunk\_78 (A2), Deloris\_77 (A2), Dignity\_79 (A2), Ebony\_79 (A11), Equemioh13\_77 (A2), Et2Brutus\_78 (A11), Fibonacci\_78 (A11), Flare16\_77 (A2), Flaverint\_80 (A11), Georgie2\_79 (A2), Gilberta\_76 (A11), Hutc2\_75 (A11), Insomnia\_77 (A11), Jabith\_78 (A11), Jerm\_79 (A2), Joselito\_78 (A11), JoshKayV\_78 (A2), Larenn\_74 (A2), Leviathan\_79 (A2), LilTurb\_78 (A2), Lucivia\_80 (A11), MaCh\_79 (A11), Mabel\_79 (A11), Malec\_75 (A2), MiculUcigas\_77 (A2), Mulciber\_77 (A11), Munch\_79 (A11), NaSiaTalie\_77 (A2), Orange\_79 (A11), Petersenfast\_73 (A11), Power\_77 (A2), Salz\_74 (A11), Sham4\_75 (A11), Smeagan\_80 (A2), SnapTap\_77 (A2), Snape\_79 (A11), SweetiePie\_77 (A2), Timothy\_79 (A11), TinyTimmy\_77 (A11), Turbido\_78 (A2), Updawg\_78 (A2), VA6\_77 (A2), Whabigail7\_77 (A2), WideWale\_78 (A2),

Start 22:

- Found in 6 of 85 ( 7.1% ) of genes in pham
- Manual Annotations of this start: 4 of 79
- Called 100.0% of time when present
- Phage (with cluster) where this start called: 20ES\_79 (A2), First\_0078 (A2), LadyBird\_81 (A2), NicoleTera\_74 (A2), TarsusIV\_76 (A2), XianYue\_74 (A2),

Start 23:

- Found in 19 of 85 ( 22.4% ) of genes in pham
- Manual Annotations of this start: 18 of 79
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Acolyte\_70 (A2), AnnaL29\_77 (A2), Benvolio\_75 (A2), BobSwaget\_71 (A2), CRB1\_79 (A2), DBQu4n\_79 (A2), Duplo\_79 (A2), Echid\_78 (A2), Kalpine\_77 (A2), Kerberos\_79 (A2), Lokk\_72 (A2), Loser\_79 (A2), Miko\_72 (A2), Pomar16\_79 (A2), Rachaly\_74 (A2), RedRock\_76 (A2), StarStuff\_79 (A2), Tomathan\_79 (A2), Trixie\_77 (A2),

## Summary by clusters:

There are 4 clusters represented in this pham: A, A14, A2, A11,

Info for manual annotations of cluster A:

- Start number 21 was manually annotated 1 time for cluster A.

Info for manual annotations of cluster A11:

- Start number 21 was manually annotated 21 times for cluster A11.

Info for manual annotations of cluster A14:

- Start number 16 was manually annotated 1 time for cluster A14.
- Start number 18 was manually annotated 2 times for cluster A14.

Info for manual annotations of cluster A2:

- Start number 19 was manually annotated 1 time for cluster A2.
- Start number 21 was manually annotated 31 times for cluster A2.
- Start number 22 was manually annotated 4 times for cluster A2.
- Start number 23 was manually annotated 18 times for cluster A2.

### **Gene Information:**

Gene: 20ES\_79 Start: 46201, Stop: 46043, Start Num: 22

Candidate Starts for 20ES\_79:

(9, 46306), (Start: 22 @46201 has 4 MA's), (25, 46183), (26, 46180), (30, 46135), (31, 46081),

Gene: AN3\_79 Start: 44967, Stop: 44803, Start Num: 21

Candidate Starts for AN3\_79:

(Start: 21 @44967 has 53 MA's), (26, 44943), (33, 44820),

Gene: AbbyPaige\_79 Start: 46472, Stop: 46311, Start Num: 21

Candidate Starts for AbbyPaige\_79:

(1, 46799), (2, 46769), (Start: 21 @46472 has 53 MA's), (26, 46448),

Gene: Acolyte\_70 Start: 44908, Stop: 44750, Start Num: 23

Candidate Starts for Acolyte\_70:

(7, 45079), (8, 45037), (14, 44947), (15, 44941), (Start: 23 @44908 has 18 MA's), (24, 44896), (25, 44890), (26, 44887), (30, 44842), (33, 44764),

Gene: Agape74\_79 Start: 46466, Stop: 46287, Start Num: 21

Candidate Starts for Agape74\_79:

(1, 46793), (2, 46763), (Start: 21 @46466 has 53 MA's), (26, 46442), (33, 46319), (36, 46304),

Gene: Aneem\_80 Start: 45709, Stop: 45548, Start Num: 21

Candidate Starts for Aneem\_80:

(4, 45913), (12, 45769), (13, 45748), (Start: 16 @45733 has 1 MA's), (Start: 21 @45709 has 53 MA's), (26, 45685), (28, 45664), (33, 45562), (34, 45556),

Gene: AnnaL29\_77 Start: 46407, Stop: 46249, Start Num: 23

Candidate Starts for AnnaL29\_77:

(Start: 23 @46407 has 18 MA's), (26, 46386), (29, 46362), (31, 46287),

Gene: ArcherNM\_71 Start: 45677, Stop: 45516, Start Num: 21

Candidate Starts for ArcherNM\_71:

(6, 45839), (Start: 19 @45680 has 1 MA's), (Start: 21 @45677 has 53 MA's), (26, 45653), (30, 45608),

Gene: Bachome\_77 Start: 44589, Stop: 44428, Start Num: 21

Candidate Starts for Bachome\_77:

(4, 44793), (12, 44649), (13, 44628), (Start: 16 @44613 has 1 MA's), (Start: 21 @44589 has 53 MA's), (26, 44565), (28, 44544), (33, 44442), (34, 44436),

Gene: Baehexic\_76 Start: 45866, Stop: 45705, Start Num: 21

Candidate Starts for Baehexic\_76:

(Start: 21 @45866 has 53 MA's), (26, 45842), (33, 45719),

Gene: BengiVuitton\_77 Start: 46160, Stop: 45996, Start Num: 21

Candidate Starts for BengiVuitton\_77:

(Start: 21 @46160 has 53 MA's), (26, 46136),

Gene: Benvolio\_75 Start: 45774, Stop: 45616, Start Num: 23

Candidate Starts for Benvolio\_75:

(Start: 23 @45774 has 18 MA's), (25, 45756), (26, 45753), (29, 45729),

Gene: BobSwaget\_71 Start: 44017, Stop: 43859, Start Num: 23

Candidate Starts for BobSwaget\_71:

(Start: 23 @44017 has 18 MA's), (24, 44005), (25, 43999), (26, 43996), (33, 43873),

Gene: Bud\_74 Start: 44146, Stop: 43985, Start Num: 21

Candidate Starts for Bud\_74:

(4, 44350), (12, 44206), (13, 44185), (Start: 16 @44170 has 1 MA's), (Start: 21 @44146 has 53 MA's), (26, 44122), (28, 44101), (33, 43999), (34, 43993),

Gene: Bugsy\_79 Start: 46517, Stop: 46356, Start Num: 21

Candidate Starts for Bugsy\_79:

(1, 46844), (2, 46814), (Start: 21 @46517 has 53 MA's), (26, 46493), (33, 46370),

Gene: CRB1\_79 Start: 46719, Stop: 46561, Start Num: 23

Candidate Starts for CRB1\_79:

(11, 46800), (13, 46758), (Start: 16 @46743 has 1 MA's), (Start: 23 @46719 has 18 MA's), (25, 46701), (26, 46698), (28, 46677), (30, 46653), (31, 46599),

Gene: Centaur\_77 Start: 45744, Stop: 45586, Start Num: 21

Candidate Starts for Centaur\_77:

(1, 46071), (Start: 21 @45744 has 53 MA's), (24, 45732), (25, 45726), (26, 45723), (27, 45720),

Gene: Chargerpower\_76 Start: 44654, Stop: 44484, Start Num: 21

Candidate Starts for Chargerpower\_76:

(4, 44852), (10, 44744), (11, 44735), (Start: 16 @44678 has 1 MA's), (20, 44657), (Start: 21 @44654 has 53 MA's), (25, 44633), (26, 44630), (31, 44528),

Gene: ChipMunk\_78 Start: 47555, Stop: 47394, Start Num: 21

Candidate Starts for ChipMunk\_78:

(3, 47759), (Start: 19 @47558 has 1 MA's), (Start: 21 @47555 has 53 MA's), (25, 47534), (26, 47531), (33, 47408),

Gene: DBQu4n\_79 Start: 46272, Stop: 46114, Start Num: 23

Candidate Starts for DBQu4n\_79:

(Start: 23 @46272 has 18 MA's), (26, 46251), (35, 46119),

Gene: Deloris\_77 Start: 45856, Stop: 45692, Start Num: 21

Candidate Starts for Deloris\_77:

(Start: 21 @45856 has 53 MA's), (26, 45832),

Gene: Dignity\_79 Start: 46555, Stop: 46394, Start Num: 21

Candidate Starts for Dignity\_79:

(1, 46882), (2, 46852), (Start: 21 @46555 has 53 MA's), (26, 46531), (33, 46408),

Gene: Duplo\_79 Start: 46329, Stop: 46171, Start Num: 23

Candidate Starts for Duplo\_79:

(Start: 23 @46329 has 18 MA's), (26, 46308), (35, 46176),

Gene: Ebony\_79 Start: 45280, Stop: 45119, Start Num: 21

Candidate Starts for Ebony\_79:

(4, 45484), (12, 45340), (13, 45319), (Start: 16 @45304 has 1 MA's), (Start: 21 @45280 has 53 MA's), (26, 45256), (28, 45235), (33, 45133), (34, 45127),

Gene: Echild\_78 Start: 45798, Stop: 45640, Start Num: 23

Candidate Starts for Echild\_78:

(Start: 23 @45798 has 18 MA's), (25, 45780), (26, 45777), (29, 45753),

Gene: Equemioh13\_77 Start: 45973, Stop: 45812, Start Num: 21

Candidate Starts for Equemioh13\_77:

(Start: 21 @45973 has 53 MA's), (26, 45949), (33, 45826),

Gene: Et2Brutus\_78 Start: 45243, Stop: 45082, Start Num: 21

Candidate Starts for Et2Brutus\_78:

(4, 45447), (12, 45303), (13, 45282), (Start: 16 @45267 has 1 MA's), (Start: 21 @45243 has 53 MA's), (26, 45219), (28, 45198), (33, 45096), (34, 45090),

Gene: EvilGenius\_77 Start: 47559, Stop: 47395, Start Num: 19

Candidate Starts for EvilGenius\_77:

(3, 47760), (Start: 19 @47559 has 1 MA's), (Start: 21 @47556 has 53 MA's), (25, 47535), (26, 47532), (33, 47409),

Gene: Fibonacci\_78 Start: 45249, Stop: 45088, Start Num: 21

Candidate Starts for Fibonacci\_78:

(4, 45453), (12, 45309), (13, 45288), (Start: 16 @45273 has 1 MA's), (Start: 21 @45249 has 53 MA's), (26, 45225), (28, 45204), (33, 45102), (34, 45096),

Gene: First\_0078 Start: 46101, Stop: 45943, Start Num: 22

Candidate Starts for First\_0078:

(9, 46206), (Start: 22 @46101 has 4 MA's), (25, 46083), (26, 46080), (30, 46035), (31, 45981),

Gene: Flare16\_77 Start: 45788, Stop: 45630, Start Num: 21

Candidate Starts for Flare16\_77:

(Start: 21 @45788 has 53 MA's), (24, 45776), (25, 45770), (26, 45767), (27, 45764),

Gene: Flaverint\_80 Start: 45707, Stop: 45546, Start Num: 21

Candidate Starts for Flaverint\_80:

(4, 45911), (12, 45767), (13, 45746), (Start: 16 @45731 has 1 MA's), (Start: 21 @45707 has 53 MA's), (26, 45683), (28, 45662), (33, 45560), (34, 45554),

Gene: Gail\_80 Start: 46590, Stop: 46417, Start Num: 16

Candidate Starts for Gail\_80:

(Start: 16 @46590 has 1 MA's), (17, 46584), (24, 46563), (26, 46554), (34, 46425),

Gene: Georgie2\_79 Start: 46463, Stop: 46302, Start Num: 21

Candidate Starts for Georgie2\_79:

(6, 46625), (Start: 21 @46463 has 53 MA's), (25, 46442), (26, 46439), (33, 46316),

Gene: Gilberta\_76 Start: 44583, Stop: 44422, Start Num: 21

Candidate Starts for Gilberta\_76:

(4, 44787), (12, 44643), (13, 44622), (Start: 16 @44607 has 1 MA's), (Start: 21 @44583 has 53 MA's), (26, 44559), (28, 44538), (33, 44436), (34, 44430),

Gene: Hutc2\_75 Start: 44133, Stop: 43972, Start Num: 21

Candidate Starts for Hutc2\_75:

(4, 44337), (12, 44193), (13, 44172), (Start: 16 @44157 has 1 MA's), (Start: 21 @44133 has 53 MA's), (26, 44109), (28, 44088), (33, 43986), (34, 43980),

Gene: Insomnia\_77 Start: 45424, Stop: 45263, Start Num: 21

Candidate Starts for Insomnia\_77:

(4, 45628), (12, 45484), (13, 45463), (Start: 16 @45448 has 1 MA's), (Start: 21 @45424 has 53 MA's), (26, 45400), (28, 45379), (33, 45277), (34, 45271),

Gene: Jabith\_78 Start: 45441, Stop: 45280, Start Num: 21

Candidate Starts for Jabith\_78:

(4, 45645), (12, 45501), (13, 45480), (Start: 16 @45465 has 1 MA's), (Start: 21 @45441 has 53 MA's), (26, 45417), (28, 45396), (33, 45294), (34, 45288),

Gene: Jeeves\_81 Start: 45307, Stop: 45143, Start Num: 18

Candidate Starts for Jeeves\_81:

(Start: 18 @45307 has 2 MA's), (24, 45289), (26, 45280), (27, 45277), (34, 45151),

Gene: Jerm\_79 Start: 46538, Stop: 46377, Start Num: 21

Candidate Starts for Jerm\_79:

(1, 46865), (2, 46835), (Start: 21 @46538 has 53 MA's), (26, 46514), (33, 46391),

Gene: Joselito\_78 Start: 45461, Stop: 45300, Start Num: 21

Candidate Starts for Joselito\_78:

(4, 45665), (12, 45521), (13, 45500), (Start: 16 @45485 has 1 MA's), (Start: 21 @45461 has 53 MA's), (26, 45437), (28, 45416), (33, 45314), (34, 45308),

Gene: JoshKayV\_78 Start: 46588, Stop: 46427, Start Num: 21

Candidate Starts for JoshKayV\_78:

(6, 46753), (Start: 21 @46588 has 53 MA's), (26, 46564), (34, 46435),

Gene: Kalpine\_77 Start: 46449, Stop: 46291, Start Num: 23

Candidate Starts for Kalpine\_77:

(Start: 23 @46449 has 18 MA's), (25, 46431), (26, 46428), (31, 46329),

Gene: Kerberos\_79 Start: 46292, Stop: 46134, Start Num: 23

Candidate Starts for Kerberos\_79:

(Start: 23 @46292 has 18 MA's), (26, 46271), (35, 46139),

Gene: LadyBird\_81 Start: 46765, Stop: 46604, Start Num: 22

Candidate Starts for LadyBird\_81:

(Start: 22 @46765 has 4 MA's), (25, 46747), (26, 46744), (28, 46723), (31, 46645),

Gene: Larenn\_74 Start: 45807, Stop: 45646, Start Num: 21

Candidate Starts for Larenn\_74:

(Start: 21 @45807 has 53 MA's), (26, 45783),

Gene: Leviathan\_79 Start: 46604, Stop: 46443, Start Num: 21



Candidate Starts for Leviathan\_79:

(1, 46931), (2, 46901), (Start: 21 @46604 has 53 MA's), (26, 46580), (33, 46457),

Gene: LilTurb\_78 Start: 46418, Stop: 46257, Start Num: 21

Candidate Starts for LilTurb\_78:

(1, 46745), (2, 46715), (Start: 21 @46418 has 53 MA's), (26, 46394), (33, 46271),

Gene: Lokk\_72 Start: 44641, Stop: 44483, Start Num: 23

Candidate Starts for Lokk\_72:

(Start: 23 @44641 has 18 MA's), (24, 44629), (25, 44623), (26, 44620), (33, 44497),

Gene: Loser\_79 Start: 46665, Stop: 46507, Start Num: 23

Candidate Starts for Loser\_79:

(Start: 23 @46665 has 18 MA's), (26, 46644), (29, 46620), (31, 46545),

Gene: Lucivia\_80 Start: 45740, Stop: 45579, Start Num: 21

Candidate Starts for Lucivia\_80:

(4, 45944), (12, 45800), (13, 45779), (Start: 16 @45764 has 1 MA's), (Start: 21 @45740 has 53 MA's), (26, 45716), (28, 45695), (33, 45593), (34, 45587),

Gene: MaCh\_79 Start: 45704, Stop: 45543, Start Num: 21

Candidate Starts for MaCh\_79:

(4, 45908), (12, 45764), (13, 45743), (Start: 16 @45728 has 1 MA's), (Start: 21 @45704 has 53 MA's), (26, 45680), (28, 45659), (33, 45557), (34, 45551),

Gene: Mabel\_79 Start: 45705, Stop: 45544, Start Num: 21

Candidate Starts for Mabel\_79:

(4, 45909), (12, 45765), (13, 45744), (Start: 16 @45729 has 1 MA's), (Start: 21 @45705 has 53 MA's), (26, 45681), (28, 45660), (33, 45558), (34, 45552),

Gene: Malec\_75 Start: 46374, Stop: 46213, Start Num: 21

Candidate Starts for Malec\_75:

(Start: 21 @46374 has 53 MA's), (26, 46350),

Gene: MiculUcigas\_77 Start: 45691, Stop: 45533, Start Num: 21

Candidate Starts for MiculUcigas\_77:

(Start: 21 @45691 has 53 MA's), (24, 45679), (25, 45673), (26, 45670), (27, 45667),

Gene: Miko\_72 Start: 45418, Stop: 45260, Start Num: 23

Candidate Starts for Miko\_72:

(Start: 23 @45418 has 18 MA's), (24, 45406), (25, 45400), (26, 45397), (33, 45274),

Gene: Mulciber\_77 Start: 45246, Stop: 45085, Start Num: 21

Candidate Starts for Mulciber\_77:

(4, 45450), (12, 45306), (13, 45285), (Start: 16 @45270 has 1 MA's), (Start: 21 @45246 has 53 MA's), (26, 45222), (28, 45201), (33, 45099), (34, 45093),

Gene: Munch\_79 Start: 45709, Stop: 45548, Start Num: 21

Candidate Starts for Munch\_79:

(4, 45913), (12, 45769), (13, 45748), (Start: 16 @45733 has 1 MA's), (Start: 21 @45709 has 53 MA's), (26, 45685), (28, 45664), (33, 45562), (34, 45556),

Gene: NaSiaTalie\_77 Start: 45785, Stop: 45627, Start Num: 21

Candidate Starts for NaSiaTalie\_77:

(Start: 21 @45785 has 53 MA's), (24, 45773), (25, 45767), (26, 45764), (27, 45761),

Gene: NicoleTera\_74 Start: 45827, Stop: 45669, Start Num: 22

Candidate Starts for NicoleTera\_74:

(Start: 22 @45827 has 4 MA's), (25, 45809), (26, 45806), (34, 45677),

Gene: Orange\_79 Start: 45259, Stop: 45098, Start Num: 21

Candidate Starts for Orange\_79:

(4, 45463), (12, 45319), (13, 45298), (Start: 16 @45283 has 1 MA's), (Start: 21 @45259 has 53 MA's), (26, 45235), (28, 45214), (33, 45112), (34, 45106),

Gene: Petersenfast\_73 Start: 44140, Stop: 43979, Start Num: 21

Candidate Starts for Petersenfast\_73:

(4, 44344), (12, 44200), (13, 44179), (Start: 16 @44164 has 1 MA's), (Start: 21 @44140 has 53 MA's), (26, 44116), (28, 44095), (33, 43993), (34, 43987),

Gene: Pomar16\_79 Start: 46362, Stop: 46204, Start Num: 23

Candidate Starts for Pomar16\_79:

(Start: 23 @46362 has 18 MA's), (26, 46341),

Gene: Power\_77 Start: 46462, Stop: 46301, Start Num: 21

Candidate Starts for Power\_77:

(6, 46624), (Start: 21 @46462 has 53 MA's), (25, 46441), (26, 46438), (33, 46315),

Gene: Rachaly\_74 Start: 45564, Stop: 45406, Start Num: 23

Candidate Starts for Rachaly\_74:

(Start: 23 @45564 has 18 MA's), (24, 45552), (25, 45546), (26, 45543), (33, 45420),

Gene: RedRock\_76 Start: 46431, Stop: 46273, Start Num: 23

Candidate Starts for RedRock\_76:

(Start: 23 @46431 has 18 MA's), (26, 46410), (29, 46386), (31, 46311),

Gene: Salz\_74 Start: 44055, Stop: 43894, Start Num: 21

Candidate Starts for Salz\_74:

(4, 44259), (12, 44115), (13, 44094), (Start: 16 @44079 has 1 MA's), (Start: 21 @44055 has 53 MA's), (26, 44031), (28, 44010), (33, 43908), (34, 43902),

Gene: Sham4\_75 Start: 44138, Stop: 43977, Start Num: 21

Candidate Starts for Sham4\_75:

(4, 44342), (12, 44198), (13, 44177), (Start: 16 @44162 has 1 MA's), (Start: 21 @44138 has 53 MA's), (26, 44114), (28, 44093), (33, 43991), (34, 43985),

Gene: Smeagan\_80 Start: 46695, Stop: 46534, Start Num: 21

Candidate Starts for Smeagan\_80:

(1, 47022), (2, 46992), (Start: 21 @46695 has 53 MA's), (26, 46671), (33, 46548),

Gene: SnapTap\_77 Start: 46118, Stop: 45957, Start Num: 21

Candidate Starts for SnapTap\_77:

(6, 46280), (Start: 21 @46118 has 53 MA's), (25, 46097), (26, 46094), (33, 45971),

Gene: Snape\_79 Start: 45248, Stop: 45087, Start Num: 21

Candidate Starts for Snape\_79:

(4, 45452), (12, 45308), (13, 45287), (Start: 16 @45272 has 1 MA's), (Start: 21 @45248 has 53 MA's), (26, 45224), (28, 45203), (33, 45101), (34, 45095),

Gene: SororFago\_79 Start: 46506, Stop: 46342, Start Num: 18

Candidate Starts for SororFago\_79:

(6, 46686), (14, 46527), (Start: 18 @46506 has 2 MA's), (24, 46488), (26, 46479), (34, 46350),

Gene: StarStuff\_79 Start: 46327, Stop: 46169, Start Num: 23

Candidate Starts for StarStuff\_79:

(Start: 23 @46327 has 18 MA's), (26, 46306),

Gene: SweetiePie\_77 Start: 46250, Stop: 46089, Start Num: 21

Candidate Starts for SweetiePie\_77:

(6, 46412), (Start: 21 @46250 has 53 MA's), (25, 46229), (26, 46226), (33, 46103),

Gene: TarsusIV\_76 Start: 46206, Stop: 46048, Start Num: 22

Candidate Starts for TarsusIV\_76:

(Start: 22 @46206 has 4 MA's), (25, 46188), (26, 46185), (32, 46080), (33, 46062),

Gene: Timothy\_79 Start: 45225, Stop: 45064, Start Num: 21

Candidate Starts for Timothy\_79:

(4, 45429), (12, 45285), (13, 45264), (Start: 16 @45249 has 1 MA's), (Start: 21 @45225 has 53 MA's), (26, 45201), (28, 45180), (33, 45078), (34, 45072),

Gene: TinyTimmy\_77 Start: 44954, Stop: 44793, Start Num: 21

Candidate Starts for TinyTimmy\_77:

(4, 45158), (12, 45014), (13, 44993), (Start: 16 @44978 has 1 MA's), (Start: 21 @44954 has 53 MA's), (26, 44930), (28, 44909), (33, 44807), (34, 44801),

Gene: Tomathan\_79 Start: 46405, Stop: 46247, Start Num: 23

Candidate Starts for Tomathan\_79:

(Start: 23 @46405 has 18 MA's), (26, 46384), (35, 46252),

Gene: Trixie\_77 Start: 46861, Stop: 46703, Start Num: 23

Candidate Starts for Trixie\_77:

(Start: 23 @46861 has 18 MA's), (25, 46843), (26, 46840), (31, 46741),

Gene: Turbido\_78 Start: 46416, Stop: 46255, Start Num: 21

Candidate Starts for Turbido\_78:

(1, 46743), (2, 46713), (Start: 21 @46416 has 53 MA's), (26, 46392),

Gene: Updawg\_78 Start: 45973, Stop: 45812, Start Num: 21

Candidate Starts for Updawg\_78:

(Start: 21 @45973 has 53 MA's), (26, 45949), (33, 45826),

Gene: VA6\_77 Start: 46145, Stop: 45981, Start Num: 21

Candidate Starts for VA6\_77:

(Start: 21 @46145 has 53 MA's), (26, 46121), (33, 45998),

Gene: Whabigail7\_77 Start: 46414, Stop: 46253, Start Num: 21

Candidate Starts for Whabigail7\_77:

(1, 46741), (2, 46711), (Start: 21 @46414 has 53 MA's), (26, 46390), (33, 46267),

Gene: WideWale\_78 Start: 45973, Stop: 45812, Start Num: 21  
Candidate Starts for WideWale\_78:  
(Start: 21 @45973 has 53 MA's), (26, 45949), (33, 45826),

Gene: XianYue\_74 Start: 45952, Stop: 45794, Start Num: 22  
Candidate Starts for XianYue\_74:  
(Start: 22 @45952 has 4 MA's), (25, 45934),