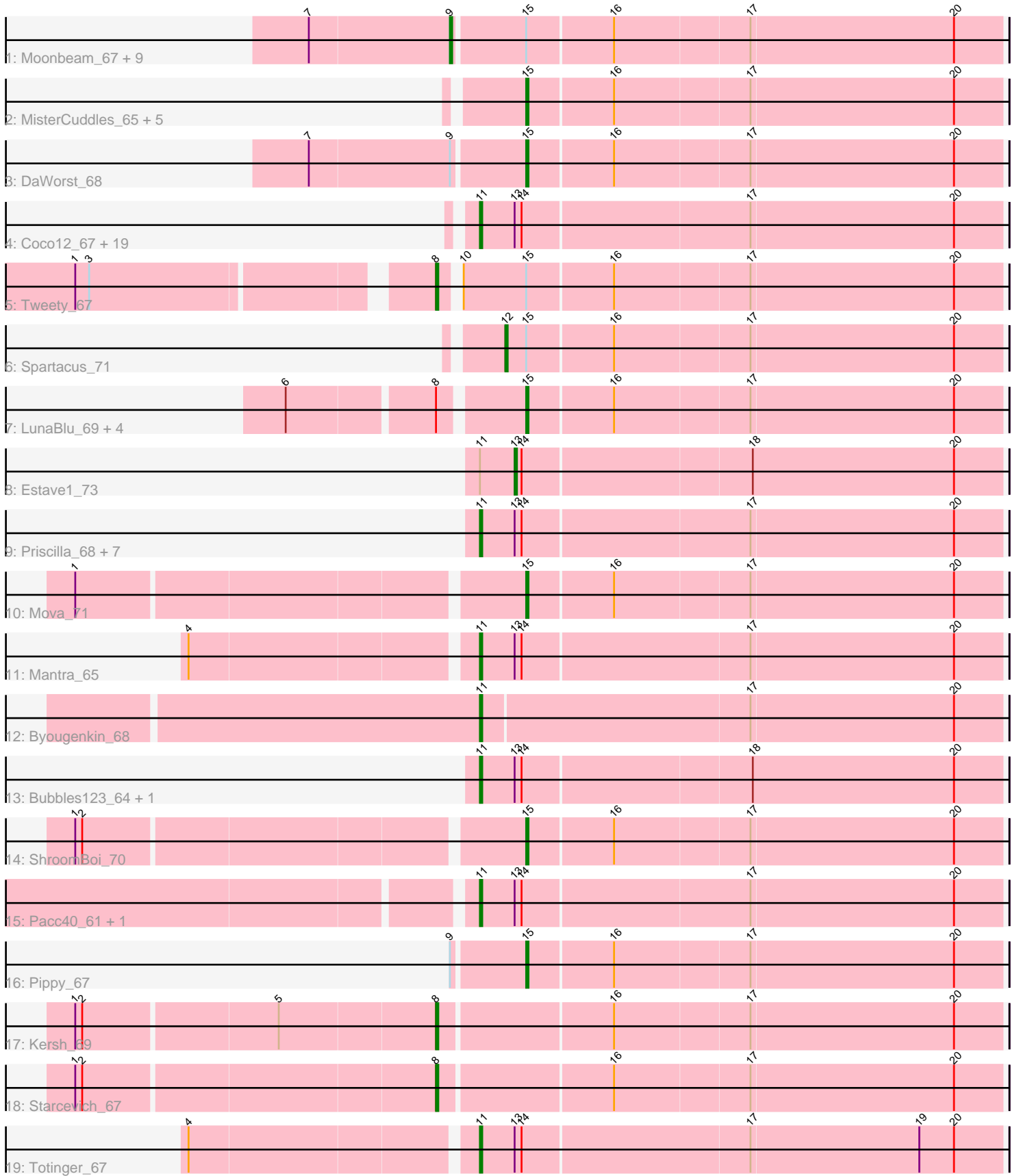


Pham 196530



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 196530 Report

This analysis was run 12/09/24 on database version 580.

Pham number 196530 has 65 members, 0 are drafts.

Phages represented in each track:

- Track 1 : Moonbeam_67, ByChance_61, Crumble_63, Fancypants_71, Emma_70, ShowerHandel_71, Zizzle_72, BobaPhett_72, Burwell21_66, Whouxphf_65
- Track 2 : MisterCuddles_65, Ruby_63, Alexphander_71, Girr_65, LilMoolah_66, Nivrat_64
- Track 3 : DaWorst_68
- Track 4 : Coco12_67, Saal_69, Brocalys_62, Doug_69, Cerasum_64, BigPhil_64, Kingsley_65, James_71, LastJedi_61, Mattes_71, Gorge_71, Clifton_62, DosHalletts_69, Lizziana_73, Velveteen_63, OlympiaSaint_69, GUmbie_65, RockyHorror_68, Sarma624_66, Rita_74
- Track 5 : Tweety_67
- Track 6 : Spartacus_71
- Track 7 : LunaBlu_69, Zerg_67, Galactic_66, Eish_70, XFactor_65
- Track 8 : Estave1_73
- Track 9 : Priscilla_68, Koella_62, Cabrinians_69, SwagPiggett_73, MinionDave_67, Spikelee_75, CaptainTrips_66, Aubs_68
- Track 10 : Mova_71
- Track 11 : Mantra_65
- Track 12 : Byougenkin_68
- Track 13 : Bubbles123_64, Jacob_67
- Track 14 : ShroomBoi_70
- Track 15 : Pacc40_61, GigiOuiOui_63
- Track 16 : Pippy_67
- Track 17 : Kersh_69
- Track 18 : Starcevich_67
- Track 19 : Totinger_67

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

The start number called the most often in the published annotations is 11, it was called in 35 of the 65 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aubs_68, BigPhil_64, Brocalys_62, Bubbles123_64, Byougenkin_68, Cabrinians_69, CaptainTrips_66, Cerasum_64, Clifton_62, Coco12_67,

DosHalletts_69, Doug_69, GUmbie_65, GigiOuiOui_63, Gorge_71, James_71, Jaracob_67, Kingsley_65, Koella_62, LastJedi_61, Lizziana_73, Mantra_65, Mattes_71, MinionDave_67, OlympiaSaint_69, Pacc40_61, Priscilla_68, Rita_74, RockyHorror_68, Saal_69, Sarma624_66, Spikelee_75, SwagPigglett_73, Totinger_67, Velveteen_63,

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

- Estave1_73,

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

- Alexphander_71, BobaPhett_72, Burwell21_66, ByChance_61, Crumble_63, DaWorst_68, Eish_70, Emma_70, Fancypants_71, Galactic_66, Girr_65, Kersh_69, LilMoolah_66, LunaBlu_69, MisterCuddles_65, Moonbeam_67, Mova_71, Nivrat_64, Pippy_67, Ruby_63, ShowerHandel_71, ShroomBoi_70, Spartacus_71, Starcevich_67, Tweety_67, Whouxphf_65, XFactor_65, Zerg_67, Zizzle_72,

Summary by start number:

Start 8:

- Found in 8 of 65 (12.3%) of genes in pham
- Manual Annotations of this start: 3 of 65
- Called 37.5% of time when present
- Phage (with cluster) where this start called: Kersh_69 (F1), Starcevich_67 (F1), Tweety_67 (F1),

Start 9:

- Found in 12 of 65 (18.5%) of genes in pham
- Manual Annotations of this start: 10 of 65
- Called 83.3% of time when present
- Phage (with cluster) where this start called: BobaPhett_72 (F1), Burwell21_66 (F1), ByChance_61 (F1), Crumble_63 (F1), Emma_70 (F1), Fancypants_71 (F1), Moonbeam_67 (F1), ShowerHandel_71 (F1), Whouxphf_65 (F1), Zizzle_72 (F1),

Start 11:

- Found in 36 of 65 (55.4%) of genes in pham
- Manual Annotations of this start: 35 of 65
- Called 97.2% of time when present
- Phage (with cluster) where this start called: Aubs_68 (F1), BigPhil_64 (F1), Brocalys_62 (F1), Bubbles123_64 (F1), Byougenkin_68 (F1), Cabrinians_69 (F1), CaptainTrips_66 (F1), Cerasum_64 (F1), Clifton_62 (F1), Coco12_67 (F1), DosHalletts_69 (F1), Doug_69 (F1), GUmbie_65 (F1), GigiOuiOui_63 (F1), Gorge_71 (F1), James_71 (F1), Jaracob_67 (F1), Kingsley_65 (F1), Koella_62 (F1), LastJedi_61 (F1), Lizziana_73 (F1), Mantra_65 (F1), Mattes_71 (F1), MinionDave_67 (F1), OlympiaSaint_69 (F1), Pacc40_61 (F1), Priscilla_68 (F1), Rita_74 (F1), RockyHorror_68 (F1), Saal_69 (F1), Sarma624_66 (F1), Spikelee_75 (F1), SwagPigglett_73 (F1), Totinger_67 (F1), Velveteen_63 (F1),

Start 12:

- Found in 1 of 65 (1.5%) of genes in pham
- Manual Annotations of this start: 1 of 65
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Spartacus_71 (F1),

Start 13:

- Found in 35 of 65 (53.8%) of genes in pham
- Manual Annotations of this start: 1 of 65
- Called 2.9% of time when present
- Phage (with cluster) where this start called: Estave1_73 (F1),

Start 15:

- Found in 27 of 65 (41.5%) of genes in pham
- Manual Annotations of this start: 15 of 65
- Called 55.6% of time when present
- Phage (with cluster) where this start called: Alexphander_71 (F1), DaWorst_68 (F1), Eish_70 (F1), Galactic_66 (F1), Girr_65 (F1), LilMoolah_66 (F1), LunaBlu_69 (F1), MisterCuddles_65 (F1), Mova_71 (F1), Nivrat_64 (F1), Pippy_67 (F1), Ruby_63 (F1), ShroomBoi_70 (F1), XFactor_65 (F1), Zerg_67 (F1),

Summary by clusters:

There is one cluster represented in this pham: F1

Info for manual annotations of cluster F1:

- Start number 8 was manually annotated 3 times for cluster F1.
- Start number 9 was manually annotated 10 times for cluster F1.
- Start number 11 was manually annotated 35 times for cluster F1.
- Start number 12 was manually annotated 1 time for cluster F1.
- Start number 13 was manually annotated 1 time for cluster F1.
- Start number 15 was manually annotated 15 times for cluster F1.

Gene Information:

Gene: Alexphander_71 Start: 45177, Stop: 45377, Start Num: 15

Candidate Starts for Alexphander_71:

(Start: 15 @45177 has 15 MA's), (16, 45213), (17, 45270), (20, 45357),

Gene: Aubs_68 Start: 45292, Stop: 45513, Start Num: 11

Candidate Starts for Aubs_68:

(Start: 11 @45292 has 35 MA's), (Start: 13 @45307 has 1 MA's), (14, 45310), (17, 45406), (20, 45493),

Gene: BigPhil_64 Start: 42023, Stop: 42244, Start Num: 11

Candidate Starts for BigPhil_64:

(Start: 11 @42023 has 35 MA's), (Start: 13 @42038 has 1 MA's), (14, 42041), (17, 42137), (20, 42224),

Gene: BobaPhett_72 Start: 47714, Stop: 47944, Start Num: 9

Candidate Starts for BobaPhett_72:

(7, 47654), (Start: 9 @47714 has 10 MA's), (Start: 15 @47744 has 15 MA's), (16, 47780), (17, 47837), (20, 47924),

Gene: Brocalys_62 Start: 43203, Stop: 43424, Start Num: 11

Candidate Starts for Brocalys_62:

(Start: 11 @43203 has 35 MA's), (Start: 13 @43218 has 1 MA's), (14, 43221), (17, 43317), (20, 43404),

Gene: Bubbles123_64 Start: 44481, Stop: 44702, Start Num: 11

Candidate Starts for Bubbles123_64:

(Start: 11 @44481 has 35 MA's), (Start: 13 @44496 has 1 MA's), (14, 44499), (18, 44595), (20, 44682),

Gene: Burwell21_66 Start: 45036, Stop: 45266, Start Num: 9

Candidate Starts for Burwell21_66:

(7, 44976), (Start: 9 @45036 has 10 MA's), (Start: 15 @45066 has 15 MA's), (16, 45102), (17, 45159), (20, 45246),

Gene: ByChance_61 Start: 41056, Stop: 41289, Start Num: 9

Candidate Starts for ByChance_61:

(7, 40996), (Start: 9 @41056 has 10 MA's), (Start: 15 @41086 has 15 MA's), (16, 41122), (17, 41179), (20, 41266),

Gene: Byougenkin_68 Start: 43105, Stop: 43326, Start Num: 11

Candidate Starts for Byougenkin_68:

(Start: 11 @43105 has 35 MA's), (17, 43219), (20, 43306),

Gene: Cabrinians_69 Start: 45124, Stop: 45345, Start Num: 11

Candidate Starts for Cabrinians_69:

(Start: 11 @45124 has 35 MA's), (Start: 13 @45139 has 1 MA's), (14, 45142), (17, 45238), (20, 45325),

Gene: CaptainTrips_66 Start: 44859, Stop: 45080, Start Num: 11

Candidate Starts for CaptainTrips_66:

(Start: 11 @44859 has 35 MA's), (Start: 13 @44874 has 1 MA's), (14, 44877), (17, 44973), (20, 45060),

Gene: Cerasum_64 Start: 42041, Stop: 42262, Start Num: 11

Candidate Starts for Cerasum_64:

(Start: 11 @42041 has 35 MA's), (Start: 13 @42056 has 1 MA's), (14, 42059), (17, 42155), (20, 42242),

Gene: Clifton_62 Start: 43554, Stop: 43775, Start Num: 11

Candidate Starts for Clifton_62:

(Start: 11 @43554 has 35 MA's), (Start: 13 @43569 has 1 MA's), (14, 43572), (17, 43668), (20, 43755),

Gene: Coco12_67 Start: 46098, Stop: 46319, Start Num: 11

Candidate Starts for Coco12_67:

(Start: 11 @46098 has 35 MA's), (Start: 13 @46113 has 1 MA's), (14, 46116), (17, 46212), (20, 46299),

Gene: Crumble_63 Start: 41011, Stop: 41244, Start Num: 9

Candidate Starts for Crumble_63:

(7, 40951), (Start: 9 @41011 has 10 MA's), (Start: 15 @41041 has 15 MA's), (16, 41077), (17, 41134), (20, 41221),

Gene: DaWorst_68 Start: 44644, Stop: 44844, Start Num: 15

Candidate Starts for DaWorst_68:

(7, 44554), (Start: 9 @44614 has 10 MA's), (Start: 15 @44644 has 15 MA's), (16, 44680), (17, 44737), (20, 44824),

Gene: DosHalletts_69 Start: 46178, Stop: 46399, Start Num: 11

Candidate Starts for DosHalletts_69:

(Start: 11 @46178 has 35 MA's), (Start: 13 @46193 has 1 MA's), (14, 46196), (17, 46292), (20, 46379),

Gene: Doug_69 Start: 46503, Stop: 46724, Start Num: 11

Candidate Starts for Doug_69:

(Start: 11 @46503 has 35 MA's), (Start: 13 @46518 has 1 MA's), (14, 46521), (17, 46617), (20, 46704),

Gene: Eish_70 Start: 45432, Stop: 45632, Start Num: 15

Candidate Starts for Eish_70:

(6, 45339), (Start: 8 @45399 has 3 MA's), (Start: 15 @45432 has 15 MA's), (16, 45468), (17, 45525), (20, 45612),

Gene: Emma_70 Start: 44637, Stop: 44867, Start Num: 9

Candidate Starts for Emma_70:

(7, 44577), (Start: 9 @44637 has 10 MA's), (Start: 15 @44667 has 15 MA's), (16, 44703), (17, 44760), (20, 44847),

Gene: Estave1_73 Start: 47498, Stop: 47704, Start Num: 13

Candidate Starts for Estave1_73:

(Start: 11 @47483 has 35 MA's), (Start: 13 @47498 has 1 MA's), (14, 47501), (18, 47597), (20, 47684),

Gene: Fancypants_71 Start: 45649, Stop: 45879, Start Num: 9

Candidate Starts for Fancypants_71:

(7, 45589), (Start: 9 @45649 has 10 MA's), (Start: 15 @45679 has 15 MA's), (16, 45715), (17, 45772), (20, 45859),

Gene: GUmbie_65 Start: 44551, Stop: 44772, Start Num: 11

Candidate Starts for GUmbie_65:

(Start: 11 @44551 has 35 MA's), (Start: 13 @44566 has 1 MA's), (14, 44569), (17, 44665), (20, 44752),

Gene: Galactic_66 Start: 44728, Stop: 44928, Start Num: 15

Candidate Starts for Galactic_66:

(6, 44635), (Start: 8 @44695 has 3 MA's), (Start: 15 @44728 has 15 MA's), (16, 44764), (17, 44821), (20, 44908),

Gene: GigiOuiOui_63 Start: 43697, Stop: 43918, Start Num: 11

Candidate Starts for GigiOuiOui_63:

(Start: 11 @43697 has 35 MA's), (Start: 13 @43712 has 1 MA's), (14, 43715), (17, 43811), (20, 43898),

Gene: Girr_65 Start: 44587, Stop: 44787, Start Num: 15

Candidate Starts for Girr_65:

(Start: 15 @44587 has 15 MA's), (16, 44623), (17, 44680), (20, 44767),

Gene: Gorge_71 Start: 46493, Stop: 46714, Start Num: 11
Candidate Starts for Gorge_71:
(Start: 11 @46493 has 35 MA's), (Start: 13 @46508 has 1 MA's), (14, 46511), (17, 46607), (20, 46694),

Gene: James_71 Start: 46618, Stop: 46839, Start Num: 11
Candidate Starts for James_71:
(Start: 11 @46618 has 35 MA's), (Start: 13 @46633 has 1 MA's), (14, 46636), (17, 46732), (20, 46819),

Gene: Jarcob_67 Start: 45048, Stop: 45269, Start Num: 11
Candidate Starts for Jarcob_67:
(Start: 11 @45048 has 35 MA's), (Start: 13 @45063 has 1 MA's), (14, 45066), (18, 45162), (20, 45249),

Gene: Kersh_69 Start: 47054, Stop: 47290, Start Num: 8
Candidate Starts for Kersh_69:
(1, 46904), (2, 46907), (5, 46988), (Start: 8 @47054 has 3 MA's), (16, 47126), (17, 47183), (20, 47270),

Gene: Kingsley_65 Start: 44831, Stop: 45052, Start Num: 11
Candidate Starts for Kingsley_65:
(Start: 11 @44831 has 35 MA's), (Start: 13 @44846 has 1 MA's), (14, 44849), (17, 44945), (20, 45032),

Gene: Koella_62 Start: 41022, Stop: 41243, Start Num: 11
Candidate Starts for Koella_62:
(Start: 11 @41022 has 35 MA's), (Start: 13 @41037 has 1 MA's), (14, 41040), (17, 41136), (20, 41223),

Gene: LastJedi_61 Start: 43597, Stop: 43818, Start Num: 11
Candidate Starts for LastJedi_61:
(Start: 11 @43597 has 35 MA's), (Start: 13 @43612 has 1 MA's), (14, 43615), (17, 43711), (20, 43798),

Gene: LilMoolah_66 Start: 45244, Stop: 45444, Start Num: 15
Candidate Starts for LilMoolah_66:
(Start: 15 @45244 has 15 MA's), (16, 45280), (17, 45337), (20, 45424),

Gene: Lizziana_73 Start: 46099, Stop: 46320, Start Num: 11
Candidate Starts for Lizziana_73:
(Start: 11 @46099 has 35 MA's), (Start: 13 @46114 has 1 MA's), (14, 46117), (17, 46213), (20, 46300),

Gene: LunaBlu_69 Start: 45387, Stop: 45587, Start Num: 15
Candidate Starts for LunaBlu_69:
(6, 45294), (Start: 8 @45354 has 3 MA's), (Start: 15 @45387 has 15 MA's), (16, 45423), (17, 45480), (20, 45567),

Gene: Mantra_65 Start: 44857, Stop: 45078, Start Num: 11
Candidate Starts for Mantra_65:
(4, 44740), (Start: 11 @44857 has 35 MA's), (Start: 13 @44872 has 1 MA's), (14, 44875), (17, 44971), (20, 45058),

Gene: Mattes_71 Start: 46618, Stop: 46839, Start Num: 11
Candidate Starts for Mattes_71:
(Start: 11 @46618 has 35 MA's), (Start: 13 @46633 has 1 MA's), (14, 46636), (17, 46732), (20, 46819),

Gene: MinionDave_67 Start: 45395, Stop: 45616, Start Num: 11
Candidate Starts for MinionDave_67:
(Start: 11 @45395 has 35 MA's), (Start: 13 @45410 has 1 MA's), (14, 45413), (17, 45509), (20, 45596),

Gene: MisterCuddles_65 Start: 44587, Stop: 44787, Start Num: 15
Candidate Starts for MisterCuddles_65:
(Start: 15 @44587 has 15 MA's), (16, 44623), (17, 44680), (20, 44767),

Gene: Moonbeam_67 Start: 44566, Stop: 44796, Start Num: 9
Candidate Starts for Moonbeam_67:
(7, 44506), (Start: 9 @44566 has 10 MA's), (Start: 15 @44596 has 15 MA's), (16, 44632), (17, 44689), (20, 44776),

Gene: Mova_71 Start: 44506, Stop: 44706, Start Num: 15
Candidate Starts for Mova_71:
(1, 44323), (Start: 15 @44506 has 15 MA's), (16, 44542), (17, 44599), (20, 44686),

Gene: Nivrat_64 Start: 45117, Stop: 45317, Start Num: 15
Candidate Starts for Nivrat_64:
(Start: 15 @45117 has 15 MA's), (16, 45153), (17, 45210), (20, 45297),

Gene: OlympiaSaint_69 Start: 45560, Stop: 45781, Start Num: 11
Candidate Starts for OlympiaSaint_69:
(Start: 11 @45560 has 35 MA's), (Start: 13 @45575 has 1 MA's), (14, 45578), (17, 45674), (20, 45761),

Gene: Pacc40_61 Start: 45123, Stop: 45344, Start Num: 11
Candidate Starts for Pacc40_61:
(Start: 11 @45123 has 35 MA's), (Start: 13 @45138 has 1 MA's), (14, 45141), (17, 45237), (20, 45324),

Gene: Pippy_67 Start: 44354, Stop: 44554, Start Num: 15
Candidate Starts for Pippy_67:
(Start: 9 @44324 has 10 MA's), (Start: 15 @44354 has 15 MA's), (16, 44390), (17, 44447), (20, 44534),

Gene: Priscilla_68 Start: 45134, Stop: 45355, Start Num: 11
Candidate Starts for Priscilla_68:
(Start: 11 @45134 has 35 MA's), (Start: 13 @45149 has 1 MA's), (14, 45152), (17, 45248), (20, 45335),

Gene: Rita_74 Start: 45986, Stop: 46207, Start Num: 11
Candidate Starts for Rita_74:
(Start: 11 @45986 has 35 MA's), (Start: 13 @46001 has 1 MA's), (14, 46004), (17, 46100), (20, 46187),

Gene: RockyHorror_68 Start: 44439, Stop: 44660, Start Num: 11
Candidate Starts for RockyHorror_68:
(Start: 11 @44439 has 35 MA's), (Start: 13 @44454 has 1 MA's), (14, 44457), (17, 44553), (20, 44640),

Gene: Ruby_63 Start: 44588, Stop: 44788, Start Num: 15
Candidate Starts for Ruby_63:
(Start: 15 @44588 has 15 MA's), (16, 44624), (17, 44681), (20, 44768),

Gene: Saal_69 Start: 46312, Stop: 46533, Start Num: 11
Candidate Starts for Saal_69:
(Start: 11 @46312 has 35 MA's), (Start: 13 @46327 has 1 MA's), (14, 46330), (17, 46426), (20, 46513),

Gene: Sarma624_66 Start: 42023, Stop: 42244, Start Num: 11
Candidate Starts for Sarma624_66:
(Start: 11 @42023 has 35 MA's), (Start: 13 @42038 has 1 MA's), (14, 42041), (17, 42137), (20, 42224),

Gene: ShowerHandel_71 Start: 44996, Stop: 45229, Start Num: 9
Candidate Starts for ShowerHandel_71:
(7, 44936), (Start: 9 @44996 has 10 MA's), (Start: 15 @45026 has 15 MA's), (16, 45062), (17, 45119), (20, 45206),

Gene: ShroomBoi_70 Start: 45075, Stop: 45275, Start Num: 15
Candidate Starts for ShroomBoi_70:
(1, 44892), (2, 44895), (Start: 15 @45075 has 15 MA's), (16, 45111), (17, 45168), (20, 45255),

Gene: Spartacus_71 Start: 46163, Stop: 46372, Start Num: 12
Candidate Starts for Spartacus_71:
(Start: 12 @46163 has 1 MA's), (Start: 15 @46172 has 15 MA's), (16, 46208), (17, 46265), (20, 46352),

Gene: Spikelee_75 Start: 46711, Stop: 46932, Start Num: 11
Candidate Starts for Spikelee_75:
(Start: 11 @46711 has 35 MA's), (Start: 13 @46726 has 1 MA's), (14, 46729), (17, 46825), (20, 46912),

Gene: Starcevich_67 Start: 45325, Stop: 45561, Start Num: 8
Candidate Starts for Starcevich_67:
(1, 45175), (2, 45178), (Start: 8 @45325 has 3 MA's), (16, 45397), (17, 45454), (20, 45541),

Gene: SwagPigglett_73 Start: 47353, Stop: 47574, Start Num: 11
Candidate Starts for SwagPigglett_73:
(Start: 11 @47353 has 35 MA's), (Start: 13 @47368 has 1 MA's), (14, 47371), (17, 47467), (20, 47554),

Gene: Totinger_67 Start: 44193, Stop: 44414, Start Num: 11
Candidate Starts for Totinger_67:
(4, 44076), (Start: 11 @44193 has 35 MA's), (Start: 13 @44208 has 1 MA's), (14, 44211), (17, 44307), (19, 44379), (20, 44394),

Gene: Tweety_67 Start: 44108, Stop: 44341, Start Num: 8

Candidate Starts for Tweety_67:

(1, 43967), (3, 43973), (Start: 8 @44108 has 3 MA's), (10, 44114), (Start: 15 @44141 has 15 MA's), (16, 44177), (17, 44234), (20, 44321),

Gene: Velveteen_63 Start: 42023, Stop: 42244, Start Num: 11

Candidate Starts for Velveteen_63:

(Start: 11 @42023 has 35 MA's), (Start: 13 @42038 has 1 MA's), (14, 42041), (17, 42137), (20, 42224),

Gene: Whouxphf_65 Start: 44903, Stop: 45133, Start Num: 9

Candidate Starts for Whouxphf_65:

(7, 44843), (Start: 9 @44903 has 10 MA's), (Start: 15 @44933 has 15 MA's), (16, 44969), (17, 45026), (20, 45113),

Gene: XFactor_65 Start: 43727, Stop: 43927, Start Num: 15

Candidate Starts for XFactor_65:

(6, 43634), (Start: 8 @43694 has 3 MA's), (Start: 15 @43727 has 15 MA's), (16, 43763), (17, 43820), (20, 43907),

Gene: Zerg_67 Start: 44571, Stop: 44771, Start Num: 15

Candidate Starts for Zerg_67:

(6, 44478), (Start: 8 @44538 has 3 MA's), (Start: 15 @44571 has 15 MA's), (16, 44607), (17, 44664), (20, 44751),

Gene: Zizzle_72 Start: 46629, Stop: 46862, Start Num: 9

Candidate Starts for Zizzle_72:

(7, 46569), (Start: 9 @46629 has 10 MA's), (Start: 15 @46659 has 15 MA's), (16, 46695), (17, 46752), (20, 46839),