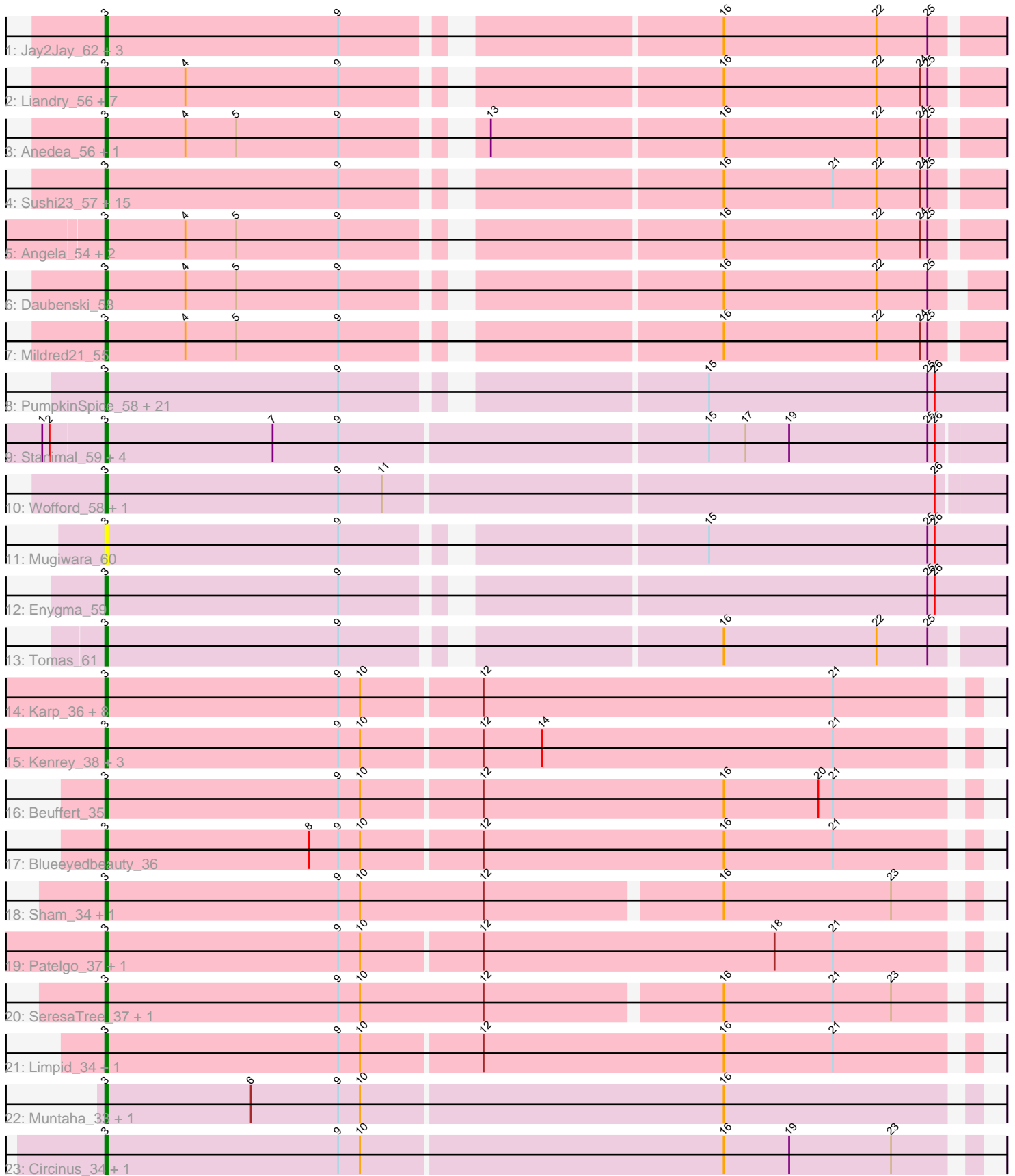


Pham 157768



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 157768 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157768 has 94 members, 13 are drafts.

Phages represented in each track:

- Track 1 : Jay2Jay\_62, Evy\_58, Targaryen\_58, Warpy\_61
- Track 2 : Liandry\_56, Squillium\_56, NootNoot\_53, Persimmon\_53, Bartholomune\_55, Braelyn\_56, PinkiePie\_55, Paradiddles\_53
- Track 3 : Anedea\_56, Bmoc\_55
- Track 4 : Sushi23\_57, Leo04\_58, Teutsch\_57, EGole\_58, Cross\_57, Watermoore\_57, BlueOtter\_59, Samisti12\_57, Lululemon\_58, Cursive\_55, HangryHippo\_59, Tribute\_55, Larnav\_62, Peebs\_56, PacManQ\_58, Pepperwood\_57
- Track 5 : Angela\_54, MulchMansion\_54, LilMartin\_54
- Track 6 : Daubenski\_58
- Track 7 : Mildred21\_55
- Track 8 : PumpkinSpice\_58, TomSawyer\_57, LukeCage\_58, Karimac\_58, StarPlatinum\_59, Wipeout\_57, Birchlyn\_56, JimJam\_59, Gibbi\_63, Bordeaux\_57, MindFlayer\_57, Spelly\_59, Amabiko\_59, IchabodCrane\_56, KentuckyRacer\_63, Starbow\_57, Jollison\_64, Battuta\_57, Quarant19\_59, Spilled\_60, SaltySpittoon\_59, CeilingFan\_61
- Track 9 : Stanimal\_59, Yaboi\_60, Sollertia\_59, Genie2\_59, BoomerJR\_59
- Track 10 : Wofford\_58, Elmer\_66
- Track 11 : Mugiwara\_60
- Track 12 : Enygma\_59
- Track 13 : Tomas\_61
- Track 14 : Karp\_36, Stigma\_37, Jada\_36, Belfort\_38, Comrade\_37, Phredrick\_36, SparkleGoddess\_37, Francob\_36, Forrest\_38
- Track 15 : Kenrey\_38, Emma1919\_38, Gilson\_38, MeganTheeKilla\_36
- Track 16 : Beuffert\_35
- Track 17 : Blueeyedbeauty\_36
- Track 18 : Sham\_34, TunaTartare\_36
- Track 19 : Patelgo\_37, Moab\_37
- Track 20 : SeresaTree\_37, Faust\_37
- Track 21 : Limpid\_34, Annadreamy\_34
- Track 22 : Muntaha\_33, Wakanda\_33
- Track 23 : Circinus\_34, BillNye\_32

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

The start number called the most often in the published annotations is 3, it was called in 81 of the 81 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Amabiko\_59, Anedea\_56, Angela\_54, Annadreamy\_34, Bartholomune\_55, Battuta\_57, Belfort\_38, Beuffert\_35, BillNye\_32, Birchlyn\_56, BlueOtter\_59, Blueeyedbeauty\_36, Bmoc\_55, BoomerJR\_59, Bordeaux\_57, Braelyn\_56, CeilingFan\_61, Circinus\_34, Comrade\_37, Cross\_57, Cursive\_55, Daubenski\_58, EGole\_58, Elmer\_66, Emma1919\_38, Enygma\_59, Evy\_58, Faust\_37, Forrest\_38, Francob\_36, Genie2\_59, Gibbi\_63, Gilson\_38, HangryHippo\_59, IchabodCrane\_56, Jada\_36, Jay2Jay\_62, JimJam\_59, Jollison\_64, Karimac\_58, Karp\_36, Kenrey\_38, KentuckyRacer\_63, Larnav\_62, Leo04\_58, Liandry\_56, LilMartin\_54, Limpid\_34, LukeCage\_58, Lululemon\_58, MeganTheeKilla\_36, Mildred21\_55, MindFlayer\_57, Moab\_37, Mugiwara\_60, MulchMansion\_54, Muntaha\_33, NootNoot\_53, PacManQ\_58, Paradiddles\_53, Patelgo\_37, Peebs\_56, Pepperwood\_57, Persimmon\_53, Phredrick\_36, PinkiePie\_55, PumpkinSpice\_58, Quarant19\_59, SaltySpittoon\_59, Samisti12\_57, SeresaTree\_37, Sham\_34, Sollertia\_59, SparkleGoddess\_37, Spelly\_59, Spilled\_60, Squillium\_56, Stanimal\_59, StarPlatinum\_59, Starbow\_57, Stigma\_37, Sushi23\_57, Targaryen\_58, Deutsch\_57, TomSawyer\_57, Tomas\_61, Tribute\_55, TunaTartare\_36, Wakanda\_33, Warpy\_61, Watermoore\_57, Wipeout\_57, Wofford\_58, Yaboi\_60,

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

- 

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

- 

### Summary by start number:

Start 3:

- Found in 94 of 94 ( 100.0% ) of genes in pham
- Manual Annotations of this start: 81 of 81
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amabiko\_59 (BE2), Anedea\_56 (BE1), Angela\_54 (BE1), Annadreamy\_34 (BK1), Bartholomune\_55 (BE1), Battuta\_57 (BE2), Belfort\_38 (BK1), Beuffert\_35 (BK1), BillNye\_32 (BK2), Birchlyn\_56 (BE2), BlueOtter\_59 (BE1), Blueeyedbeauty\_36 (BK1), Bmoc\_55 (BE1), BoomerJR\_59 (BE2), Bordeaux\_57 (BE2), Braelyn\_56 (BE1), CeilingFan\_61 (BE2), Circinus\_34 (BK2), Comrade\_37 (BK1), Cross\_57 (BE1), Cursive\_55 (BE1), Daubenski\_58 (BE1), EGole\_58 (BE1), Elmer\_66 (BE2), Emma1919\_38 (BK1), Enygma\_59 (BE2), Evy\_58 (BE1), Faust\_37 (BK1), Forrest\_38 (BK1), Francob\_36 (BK1), Genie2\_59 (BE2), Gibbi\_63 (BE2), Gilson\_38 (BK1), HangryHippo\_59 (BE1), IchabodCrane\_56 (BE2), Jada\_36 (BK1), Jay2Jay\_62 (BE1), JimJam\_59 (BE2), Jollison\_64 (BE2), Karimac\_58 (BE2), Karp\_36 (BK1), Kenrey\_38 (BK1), KentuckyRacer\_63 (BE2), Larnav\_62 (BE1), Leo04\_58 (BE1), Liandry\_56 (BE1), LilMartin\_54 (BE1), Limpid\_34 (BK1), LukeCage\_58 (BE2), Lululemon\_58 (BE1), MeganTheeKilla\_36 (BK1), Mildred21\_55 (BE1), MindFlayer\_57 (BE2), Moab\_37 (BK1), Mugiwara\_60 (BE2), MulchMansion\_54 (BE1), Muntaha\_33 (BK2), NootNoot\_53 (BE1), PacManQ\_58 (BE1), Paradiddles\_53 (BE1), Patelgo\_37 (BK1), Peebs\_56 (BE1), Pepperwood\_57 (BE1), Persimmon\_53 (BE1), Phredrick\_36 (BK1), PinkiePie\_55 (BE1), PumpkinSpice\_58 (BE2), Quarant19\_59 (BE2), SaltySpittoon\_59 (BE2), Samisti12\_57 (BE1), SeresaTree\_37 (BK1), Sham\_34 (BK1), Sollertia\_59 (BE2),

SparkleGoddess\_37 (BK1), Spelly\_59 (BE2), Spilled\_60 (BE2), Squillium\_56 (BE1), Stanimal\_59 (BE2), StarPlatinum\_59 (BE2), Starbow\_57 (BE2), Stigma\_37 (BK1), Sushi23\_57 (BE1), Targaryen\_58 (BE1), Teutsch\_57 (BE1), TomSawyer\_57 (BE2), Tomas\_61 (BE2), Tribute\_55 (BE1), TunaTartare\_36 (BK1), Wakanda\_33 (BK2), Warpy\_61 (BE1), Watermoore\_57 (BE1), Wipeout\_57 (BE2), Wofford\_58 (BE2), Yaboi\_60 (BE2),

### **Summary by clusters:**

There are 4 clusters represented in this pham: BE2, BE1, BK1, BK2,

Info for manual annotations of cluster BE1:

- Start number 3 was manually annotated 29 times for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 3 was manually annotated 26 times for cluster BE2.

Info for manual annotations of cluster BK1:

- Start number 3 was manually annotated 22 times for cluster BK1.

Info for manual annotations of cluster BK2:

- Start number 3 was manually annotated 4 times for cluster BK2.

### **Gene Information:**

Gene: Amabiko\_59 Start: 33051, Stop: 33401, Start Num: 3

Candidate Starts for Amabiko\_59:

(Start: 3 @33051 has 81 MA's), (9, 33147), (15, 33279), (25, 33369), (26, 33372),

Gene: Anedea\_56 Start: 32571, Stop: 32915, Start Num: 3

Candidate Starts for Anedea\_56:

(Start: 3 @32571 has 81 MA's), (4, 32604), (5, 32625), (9, 32667), (13, 32712), (16, 32805), (22, 32868), (24, 32886), (25, 32889),

Gene: Angela\_54 Start: 32044, Stop: 32388, Start Num: 3

Candidate Starts for Angela\_54:

(Start: 3 @32044 has 81 MA's), (4, 32077), (5, 32098), (9, 32140), (16, 32278), (22, 32341), (24, 32359), (25, 32362),

Gene: Annadreamy\_34 Start: 21709, Stop: 22059, Start Num: 3

Candidate Starts for Annadreamy\_34:

(Start: 3 @21709 has 81 MA's), (9, 21805), (10, 21814), (12, 21862), (16, 21961), (21, 22006),

Gene: Bartholomune\_55 Start: 32360, Stop: 32704, Start Num: 3

Candidate Starts for Bartholomune\_55:

(Start: 3 @32360 has 81 MA's), (4, 32393), (9, 32456), (16, 32594), (22, 32657), (24, 32675), (25, 32678),

Gene: Battuta\_57 Start: 33025, Stop: 33375, Start Num: 3

Candidate Starts for Battuta\_57:

(Start: 3 @33025 has 81 MA's), (9, 33121), (15, 33253), (25, 33343), (26, 33346),

Gene: Belfort\_38 Start: 24214, Stop: 24564, Start Num: 3

Candidate Starts for Belfort\_38:

(Start: 3 @24214 has 81 MA's), (9, 24310), (10, 24319), (12, 24367), (21, 24511),

Gene: Beuffert\_35 Start: 22804, Stop: 23154, Start Num: 3

Candidate Starts for Beuffert\_35:

(Start: 3 @22804 has 81 MA's), (9, 22900), (10, 22909), (12, 22957), (16, 23056), (20, 23095), (21, 23101),

Gene: BillNye\_32 Start: 25085, Stop: 25435, Start Num: 3

Candidate Starts for BillNye\_32:

(Start: 3 @25085 has 81 MA's), (9, 25181), (10, 25190), (16, 25337), (19, 25364), (23, 25406),

Gene: Birchlyn\_56 Start: 30908, Stop: 31258, Start Num: 3

Candidate Starts for Birchlyn\_56:

(Start: 3 @30908 has 81 MA's), (9, 31004), (15, 31136), (25, 31226), (26, 31229),

Gene: BlueOtter\_59 Start: 33725, Stop: 34069, Start Num: 3

Candidate Starts for BlueOtter\_59:

(Start: 3 @33725 has 81 MA's), (9, 33821), (16, 33959), (21, 34004), (22, 34022), (24, 34040), (25, 34043),

Gene: Blueeyedbeauty\_36 Start: 22200, Stop: 22550, Start Num: 3

Candidate Starts for Blueeyedbeauty\_36:

(Start: 3 @22200 has 81 MA's), (8, 22284), (9, 22296), (10, 22305), (12, 22353), (16, 22452), (21, 22497),

Gene: Bmoc\_55 Start: 32356, Stop: 32700, Start Num: 3

Candidate Starts for Bmoc\_55:

(Start: 3 @32356 has 81 MA's), (4, 32389), (5, 32410), (9, 32452), (13, 32497), (16, 32590), (22, 32653), (24, 32671), (25, 32674),

Gene: BoomerJR\_59 Start: 32913, Stop: 33275, Start Num: 3

Candidate Starts for BoomerJR\_59:

(1, 32889), (2, 32892), (Start: 3 @32913 has 81 MA's), (7, 32982), (9, 33009), (15, 33156), (17, 33171), (19, 33189), (25, 33246), (26, 33249),

Gene: Bordeaux\_57 Start: 33180, Stop: 33530, Start Num: 3

Candidate Starts for Bordeaux\_57:

(Start: 3 @33180 has 81 MA's), (9, 33276), (15, 33408), (25, 33498), (26, 33501),

Gene: Braelyn\_56 Start: 33127, Stop: 33471, Start Num: 3

Candidate Starts for Braelyn\_56:

(Start: 3 @33127 has 81 MA's), (4, 33160), (9, 33223), (16, 33361), (22, 33424), (24, 33442), (25, 33445),

Gene: CeilingFan\_61 Start: 32940, Stop: 33290, Start Num: 3

Candidate Starts for CeilingFan\_61:

(Start: 3 @32940 has 81 MA's), (9, 33036), (15, 33168), (25, 33258), (26, 33261),

Gene: Circinus\_34 Start: 25221, Stop: 25571, Start Num: 3

Candidate Starts for Circinus\_34:

(Start: 3 @25221 has 81 MA's), (9, 25317), (10, 25326), (16, 25473), (19, 25500), (23, 25542),

Gene: Comrade\_37 Start: 23829, Stop: 24179, Start Num: 3

Candidate Starts for Comrade\_37:

(Start: 3 @23829 has 81 MA's), (9, 23925), (10, 23934), (12, 23982), (21, 24126),

Gene: Cross\_57 Start: 33726, Stop: 34070, Start Num: 3

Candidate Starts for Cross\_57:

(Start: 3 @33726 has 81 MA's), (9, 33822), (16, 33960), (21, 34005), (22, 34023), (24, 34041), (25, 34044),

Gene: Cursive\_55 Start: 33251, Stop: 33595, Start Num: 3

Candidate Starts for Cursive\_55:

(Start: 3 @33251 has 81 MA's), (9, 33347), (16, 33485), (21, 33530), (22, 33548), (24, 33566), (25, 33569),

Gene: Daubenski\_58 Start: 33470, Stop: 33811, Start Num: 3

Candidate Starts for Daubenski\_58:

(Start: 3 @33470 has 81 MA's), (4, 33503), (5, 33524), (9, 33566), (16, 33704), (22, 33767), (25, 33788),

Gene: EGole\_58 Start: 34681, Stop: 35025, Start Num: 3

Candidate Starts for EGole\_58:

(Start: 3 @34681 has 81 MA's), (9, 34777), (16, 34915), (21, 34960), (22, 34978), (24, 34996), (25, 34999),

Gene: Elmer\_66 Start: 34098, Stop: 34460, Start Num: 3

Candidate Starts for Elmer\_66:

(Start: 3 @34098 has 81 MA's), (9, 34194), (11, 34212), (26, 34434),

Gene: Emma1919\_38 Start: 22615, Stop: 22965, Start Num: 3

Candidate Starts for Emma1919\_38:

(Start: 3 @22615 has 81 MA's), (9, 22711), (10, 22720), (12, 22768), (14, 22792), (21, 22912),

Gene: Enygma\_59 Start: 34858, Stop: 35208, Start Num: 3

Candidate Starts for Enygma\_59:

(Start: 3 @34858 has 81 MA's), (9, 34954), (25, 35176), (26, 35179),

Gene: Evy\_58 Start: 33726, Stop: 34070, Start Num: 3

Candidate Starts for Evy\_58:

(Start: 3 @33726 has 81 MA's), (9, 33822), (16, 33960), (22, 34023), (25, 34044),

Gene: Faust\_37 Start: 23192, Stop: 23539, Start Num: 3

Candidate Starts for Faust\_37:

(Start: 3 @23192 has 81 MA's), (9, 23288), (10, 23297), (12, 23348), (16, 23441), (21, 23486), (23, 23510),

Gene: Forrest\_38 Start: 22738, Stop: 23088, Start Num: 3

Candidate Starts for Forrest\_38:

(Start: 3 @22738 has 81 MA's), (9, 22834), (10, 22843), (12, 22891), (21, 23035),

Gene: Francob\_36 Start: 22750, Stop: 23100, Start Num: 3

Candidate Starts for Francob\_36:

(Start: 3 @22750 has 81 MA's), (9, 22846), (10, 22855), (12, 22903), (21, 23047),

Gene: Genie2\_59 Start: 33027, Stop: 33389, Start Num: 3

Candidate Starts for Genie2\_59:

(1, 33003), (2, 33006), (Start: 3 @33027 has 81 MA's), (7, 33096), (9, 33123), (15, 33270), (17, 33285), (19, 33303), (25, 33360), (26, 33363),

Gene: Gibbi\_63 Start: 33163, Stop: 33513, Start Num: 3

Candidate Starts for Gibbi\_63:

(Start: 3 @33163 has 81 MA's), (9, 33259), (15, 33391), (25, 33481), (26, 33484),

Gene: Gilson\_38 Start: 22568, Stop: 22918, Start Num: 3

Candidate Starts for Gilson\_38:

(Start: 3 @22568 has 81 MA's), (9, 22664), (10, 22673), (12, 22721), (14, 22745), (21, 22865),

Gene: HangryHippo\_59 Start: 33725, Stop: 34069, Start Num: 3

Candidate Starts for HangryHippo\_59:

(Start: 3 @33725 has 81 MA's), (9, 33821), (16, 33959), (21, 34004), (22, 34022), (24, 34040), (25, 34043),

Gene: IchabodCrane\_56 Start: 32752, Stop: 33102, Start Num: 3

Candidate Starts for IchabodCrane\_56:

(Start: 3 @32752 has 81 MA's), (9, 32848), (15, 32980), (25, 33070), (26, 33073),

Gene: Jada\_36 Start: 21920, Stop: 22270, Start Num: 3

Candidate Starts for Jada\_36:

(Start: 3 @21920 has 81 MA's), (9, 22016), (10, 22025), (12, 22073), (21, 22217),

Gene: Jay2Jay\_62 Start: 34579, Stop: 34923, Start Num: 3

Candidate Starts for Jay2Jay\_62:

(Start: 3 @34579 has 81 MA's), (9, 34675), (16, 34813), (22, 34876), (25, 34897),

Gene: JimJam\_59 Start: 33126, Stop: 33476, Start Num: 3

Candidate Starts for JimJam\_59:

(Start: 3 @33126 has 81 MA's), (9, 33222), (15, 33354), (25, 33444), (26, 33447),

Gene: Jollison\_64 Start: 33008, Stop: 33358, Start Num: 3

Candidate Starts for Jollison\_64:

(Start: 3 @33008 has 81 MA's), (9, 33104), (15, 33236), (25, 33326), (26, 33329),

Gene: Karimac\_58 Start: 33157, Stop: 33507, Start Num: 3

Candidate Starts for Karimac\_58:

(Start: 3 @33157 has 81 MA's), (9, 33253), (15, 33385), (25, 33475), (26, 33478),

Gene: Karp\_36 Start: 23429, Stop: 23779, Start Num: 3

Candidate Starts for Karp\_36:

(Start: 3 @23429 has 81 MA's), (9, 23525), (10, 23534), (12, 23582), (21, 23726),

Gene: Kenrey\_38 Start: 22617, Stop: 22967, Start Num: 3

Candidate Starts for Kenrey\_38:

(Start: 3 @22617 has 81 MA's), (9, 22713), (10, 22722), (12, 22770), (14, 22794), (21, 22914),

Gene: KentuckyRacer\_63 Start: 32941, Stop: 33291, Start Num: 3

Candidate Starts for KentuckyRacer\_63:

(Start: 3 @32941 has 81 MA's), (9, 33037), (15, 33169), (25, 33259), (26, 33262),

Gene: Larnav\_62 Start: 33710, Stop: 34054, Start Num: 3

Candidate Starts for Larnav\_62:

(Start: 3 @33710 has 81 MA's), (9, 33806), (16, 33944), (21, 33989), (22, 34007), (24, 34025), (25, 34028),

Gene: Leo04\_58 Start: 34225, Stop: 34569, Start Num: 3

Candidate Starts for Leo04\_58:

(Start: 3 @34225 has 81 MA's), (9, 34321), (16, 34459), (21, 34504), (22, 34522), (24, 34540), (25, 34543),

Gene: Liandry\_56 Start: 33109, Stop: 33453, Start Num: 3

Candidate Starts for Liandry\_56:

(Start: 3 @33109 has 81 MA's), (4, 33142), (9, 33205), (16, 33343), (22, 33406), (24, 33424), (25, 33427),

Gene: LilMartin\_54 Start: 31992, Stop: 32336, Start Num: 3

Candidate Starts for LilMartin\_54:

(Start: 3 @31992 has 81 MA's), (4, 32025), (5, 32046), (9, 32088), (16, 32226), (22, 32289), (24, 32307), (25, 32310),

Gene: Limpid\_34 Start: 21708, Stop: 22058, Start Num: 3

Candidate Starts for Limpid\_34:

(Start: 3 @21708 has 81 MA's), (9, 21804), (10, 21813), (12, 21861), (16, 21960), (21, 22005),

Gene: LukeCage\_58 Start: 32907, Stop: 33257, Start Num: 3

Candidate Starts for LukeCage\_58:

(Start: 3 @32907 has 81 MA's), (9, 33003), (15, 33135), (25, 33225), (26, 33228),

Gene: Lululemon\_58 Start: 33106, Stop: 33450, Start Num: 3

Candidate Starts for Lululemon\_58:

(Start: 3 @33106 has 81 MA's), (9, 33202), (16, 33340), (21, 33385), (22, 33403), (24, 33421), (25, 33424),

Gene: MeganTheeKilla\_36 Start: 21929, Stop: 22279, Start Num: 3

Candidate Starts for MeganTheeKilla\_36:

(Start: 3 @21929 has 81 MA's), (9, 22025), (10, 22034), (12, 22082), (14, 22106), (21, 22226),

Gene: Mildred21\_55 Start: 32188, Stop: 32532, Start Num: 3

Candidate Starts for Mildred21\_55:

(Start: 3 @32188 has 81 MA's), (4, 32221), (5, 32242), (9, 32284), (16, 32422), (22, 32485), (24, 32503), (25, 32506),

Gene: MindFlayer\_57 Start: 32659, Stop: 33009, Start Num: 3

Candidate Starts for MindFlayer\_57:

(Start: 3 @32659 has 81 MA's), (9, 32755), (15, 32887), (25, 32977), (26, 32980),

Gene: Moab\_37 Start: 23759, Stop: 24109, Start Num: 3

Candidate Starts for Moab\_37:

(Start: 3 @23759 has 81 MA's), (9, 23855), (10, 23864), (12, 23912), (18, 24032), (21, 24056),



Gene: Mugiwara\_60 Start: 33407, Stop: 33757, Start Num: 3  
Candidate Starts for Mugiwara\_60:  
(Start: 3 @33407 has 81 MA's), (9, 33503), (15, 33635), (25, 33725), (26, 33728),

Gene: MulchMansion\_54 Start: 31992, Stop: 32336, Start Num: 3  
Candidate Starts for MulchMansion\_54:  
(Start: 3 @31992 has 81 MA's), (4, 32025), (5, 32046), (9, 32088), (16, 32226), (22, 32289), (24, 32307), (25, 32310),

Gene: Muntaha\_33 Start: 23550, Stop: 23900, Start Num: 3  
Candidate Starts for Muntaha\_33:  
(Start: 3 @23550 has 81 MA's), (6, 23610), (9, 23646), (10, 23655), (16, 23802),

Gene: NootNoot\_53 Start: 32023, Stop: 32367, Start Num: 3  
Candidate Starts for NootNoot\_53:  
(Start: 3 @32023 has 81 MA's), (4, 32056), (9, 32119), (16, 32257), (22, 32320), (24, 32338), (25, 32341),

Gene: PacManQ\_58 Start: 33106, Stop: 33450, Start Num: 3  
Candidate Starts for PacManQ\_58:  
(Start: 3 @33106 has 81 MA's), (9, 33202), (16, 33340), (21, 33385), (22, 33403), (24, 33421), (25, 33424),

Gene: Paradiddles\_53 Start: 32284, Stop: 32628, Start Num: 3  
Candidate Starts for Paradiddles\_53:  
(Start: 3 @32284 has 81 MA's), (4, 32317), (9, 32380), (16, 32518), (22, 32581), (24, 32599), (25, 32602),

Gene: Patelgo\_37 Start: 23949, Stop: 24299, Start Num: 3  
Candidate Starts for Patelgo\_37:  
(Start: 3 @23949 has 81 MA's), (9, 24045), (10, 24054), (12, 24102), (18, 24222), (21, 24246),

Gene: Peebs\_56 Start: 33463, Stop: 33807, Start Num: 3  
Candidate Starts for Peebs\_56:  
(Start: 3 @33463 has 81 MA's), (9, 33559), (16, 33697), (21, 33742), (22, 33760), (24, 33778), (25, 33781),

Gene: Pepperwood\_57 Start: 33596, Stop: 33940, Start Num: 3  
Candidate Starts for Pepperwood\_57:  
(Start: 3 @33596 has 81 MA's), (9, 33692), (16, 33830), (21, 33875), (22, 33893), (24, 33911), (25, 33914),

Gene: Persimmon\_53 Start: 31953, Stop: 32297, Start Num: 3  
Candidate Starts for Persimmon\_53:  
(Start: 3 @31953 has 81 MA's), (4, 31986), (9, 32049), (16, 32187), (22, 32250), (24, 32268), (25, 32271),

Gene: Phredrick\_36 Start: 21823, Stop: 22173, Start Num: 3  
Candidate Starts for Phredrick\_36:  
(Start: 3 @21823 has 81 MA's), (9, 21919), (10, 21928), (12, 21976), (21, 22120),

Gene: PinkiePie\_55 Start: 33109, Stop: 33453, Start Num: 3  
Candidate Starts for PinkiePie\_55:

(Start: 3 @33109 has 81 MA's), (4, 33142), (9, 33205), (16, 33343), (22, 33406), (24, 33424), (25, 33427),

Gene: PumpkinSpice\_58 Start: 33051, Stop: 33401, Start Num: 3

Candidate Starts for PumpkinSpice\_58:

(Start: 3 @33051 has 81 MA's), (9, 33147), (15, 33279), (25, 33369), (26, 33372),

Gene: Quaran19\_59 Start: 33042, Stop: 33392, Start Num: 3

Candidate Starts for Quaran19\_59:

(Start: 3 @33042 has 81 MA's), (9, 33138), (15, 33270), (25, 33360), (26, 33363),

Gene: SaltySpittoon\_59 Start: 33051, Stop: 33401, Start Num: 3

Candidate Starts for SaltySpittoon\_59:

(Start: 3 @33051 has 81 MA's), (9, 33147), (15, 33279), (25, 33369), (26, 33372),

Gene: Samisti12\_57 Start: 34899, Stop: 35243, Start Num: 3

Candidate Starts for Samisti12\_57:

(Start: 3 @34899 has 81 MA's), (9, 34995), (16, 35133), (21, 35178), (22, 35196), (24, 35214), (25, 35217),

Gene: SeresaTree\_37 Start: 22582, Stop: 22929, Start Num: 3

Candidate Starts for SeresaTree\_37:

(Start: 3 @22582 has 81 MA's), (9, 22678), (10, 22687), (12, 22738), (16, 22831), (21, 22876), (23, 22900),

Gene: Sham\_34 Start: 23683, Stop: 24030, Start Num: 3

Candidate Starts for Sham\_34:

(Start: 3 @23683 has 81 MA's), (9, 23779), (10, 23788), (12, 23839), (16, 23932), (23, 24001),

Gene: Sollertia\_59 Start: 33027, Stop: 33389, Start Num: 3

Candidate Starts for Sollertia\_59:

(1, 33003), (2, 33006), (Start: 3 @33027 has 81 MA's), (7, 33096), (9, 33123), (15, 33270), (17, 33285), (19, 33303), (25, 33360), (26, 33363),

Gene: SparkleGoddess\_37 Start: 23831, Stop: 24181, Start Num: 3

Candidate Starts for SparkleGoddess\_37:

(Start: 3 @23831 has 81 MA's), (9, 23927), (10, 23936), (12, 23984), (21, 24128),

Gene: Spelly\_59 Start: 33006, Stop: 33356, Start Num: 3

Candidate Starts for Spelly\_59:

(Start: 3 @33006 has 81 MA's), (9, 33102), (15, 33234), (25, 33324), (26, 33327),

Gene: Spilled\_60 Start: 33123, Stop: 33473, Start Num: 3

Candidate Starts for Spilled\_60:

(Start: 3 @33123 has 81 MA's), (9, 33219), (15, 33351), (25, 33441), (26, 33444),

Gene: Squillium\_56 Start: 33110, Stop: 33454, Start Num: 3

Candidate Starts for Squillium\_56:

(Start: 3 @33110 has 81 MA's), (4, 33143), (9, 33206), (16, 33344), (22, 33407), (24, 33425), (25, 33428),

Gene: Stanimal\_59 Start: 32916, Stop: 33278, Start Num: 3

Candidate Starts for Stanimal\_59:

(1, 32892), (2, 32895), (Start: 3 @32916 has 81 MA's), (7, 32985), (9, 33012), (15, 33159), (17, 33174), (19, 33192), (25, 33249), (26, 33252),

Gene: StarPlatinum\_59 Start: 33547, Stop: 33897, Start Num: 3

Candidate Starts for StarPlatinum\_59:

(Start: 3 @33547 has 81 MA's), (9, 33643), (15, 33775), (25, 33865), (26, 33868),

Gene: Starbow\_57 Start: 33027, Stop: 33377, Start Num: 3

Candidate Starts for Starbow\_57:

(Start: 3 @33027 has 81 MA's), (9, 33123), (15, 33255), (25, 33345), (26, 33348),

Gene: Stigma\_37 Start: 23832, Stop: 24182, Start Num: 3

Candidate Starts for Stigma\_37:

(Start: 3 @23832 has 81 MA's), (9, 23928), (10, 23937), (12, 23985), (21, 24129),

Gene: Sushi23\_57 Start: 33821, Stop: 34165, Start Num: 3

Candidate Starts for Sushi23\_57:

(Start: 3 @33821 has 81 MA's), (9, 33917), (16, 34055), (21, 34100), (22, 34118), (24, 34136), (25, 34139),

Gene: Targaryen\_58 Start: 34628, Stop: 34972, Start Num: 3

Candidate Starts for Targaryen\_58:

(Start: 3 @34628 has 81 MA's), (9, 34724), (16, 34862), (22, 34925), (25, 34946),

Gene: Teutsch\_57 Start: 34090, Stop: 34434, Start Num: 3

Candidate Starts for Teutsch\_57:

(Start: 3 @34090 has 81 MA's), (9, 34186), (16, 34324), (21, 34369), (22, 34387), (24, 34405), (25, 34408),

Gene: TomSawyer\_57 Start: 32645, Stop: 32995, Start Num: 3

Candidate Starts for TomSawyer\_57:

(Start: 3 @32645 has 81 MA's), (9, 32741), (15, 32873), (25, 32963), (26, 32966),

Gene: Tomas\_61 Start: 35379, Stop: 35723, Start Num: 3

Candidate Starts for Tomas\_61:

(Start: 3 @35379 has 81 MA's), (9, 35475), (16, 35613), (22, 35676), (25, 35697),

Gene: Tribute\_55 Start: 33290, Stop: 33634, Start Num: 3

Candidate Starts for Tribute\_55:

(Start: 3 @33290 has 81 MA's), (9, 33386), (16, 33524), (21, 33569), (22, 33587), (24, 33605), (25, 33608),

Gene: TunaTartare\_36 Start: 23978, Stop: 24325, Start Num: 3

Candidate Starts for TunaTartare\_36:

(Start: 3 @23978 has 81 MA's), (9, 24074), (10, 24083), (12, 24134), (16, 24227), (23, 24296),

Gene: Wakanda\_33 Start: 23488, Stop: 23838, Start Num: 3

Candidate Starts for Wakanda\_33:

(Start: 3 @23488 has 81 MA's), (6, 23548), (9, 23584), (10, 23593), (16, 23740),

Gene: Warpy\_61 Start: 34092, Stop: 34436, Start Num: 3

Candidate Starts for Warpy\_61:

(Start: 3 @34092 has 81 MA's), (9, 34188), (16, 34326), (22, 34389), (25, 34410),

Gene: Watermoore\_57 Start: 34297, Stop: 34641, Start Num: 3

Candidate Starts for Watermoore\_57:

(Start: 3 @34297 has 81 MA's), (9, 34393), (16, 34531), (21, 34576), (22, 34594), (24, 34612), (25, 34615),

Gene: Wipeout\_57 Start: 33396, Stop: 33746, Start Num: 3

Candidate Starts for Wipeout\_57:

(Start: 3 @33396 has 81 MA's), (9, 33492), (15, 33624), (25, 33714), (26, 33717),

Gene: Wofford\_58 Start: 34061, Stop: 34423, Start Num: 3

Candidate Starts for Wofford\_58:

(Start: 3 @34061 has 81 MA's), (9, 34157), (11, 34175), (26, 34397),

Gene: Yaboi\_60 Start: 33004, Stop: 33366, Start Num: 3

Candidate Starts for Yaboi\_60:

(1, 32980), (2, 32983), (Start: 3 @33004 has 81 MA's), (7, 33073), (9, 33100), (15, 33247), (17, 33262), (19, 33280), (25, 33337), (26, 33340),