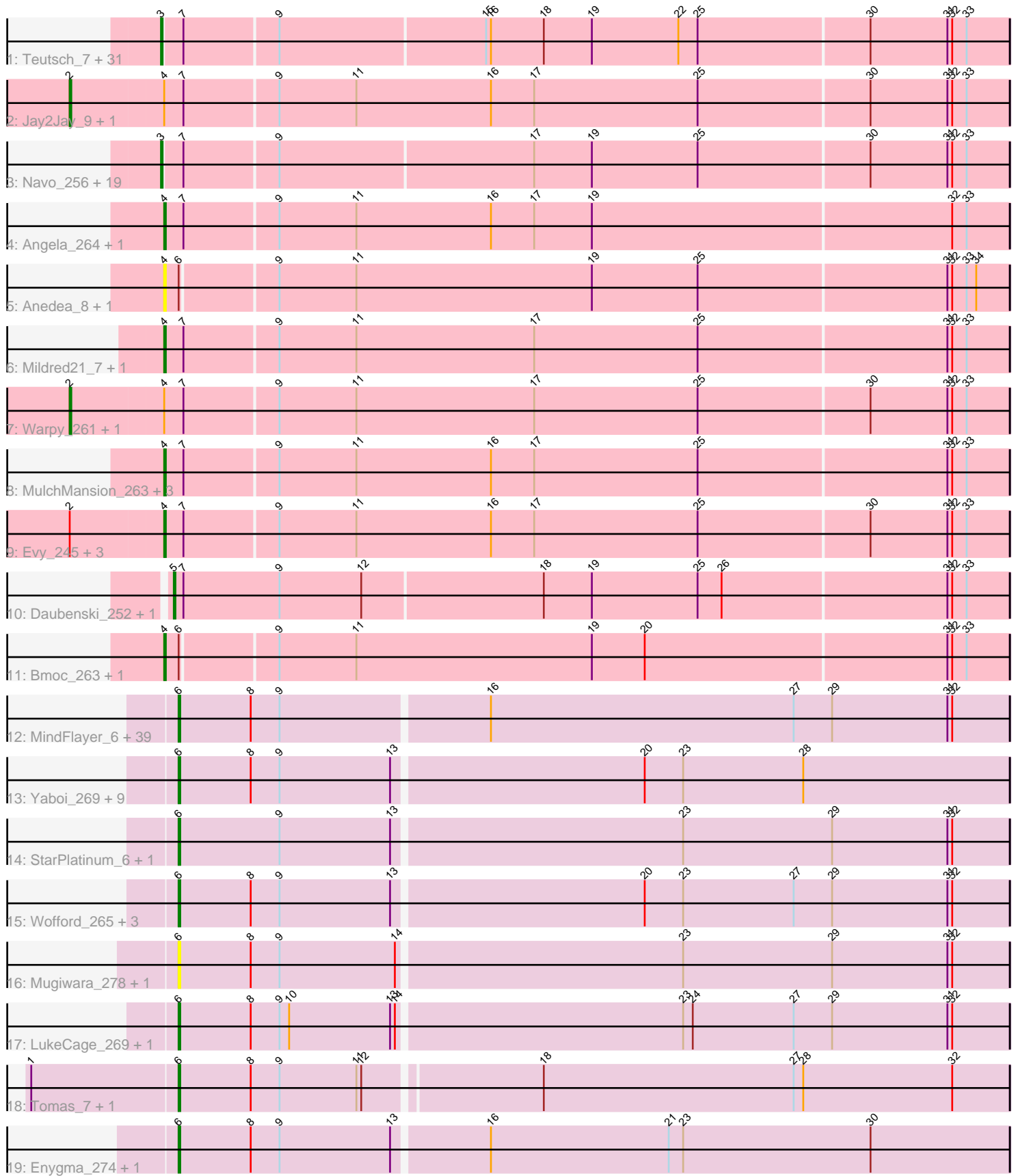


# Pham 161690



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 161690 Report

This analysis was run 05/04/24 on database version 560.

Pham number 161690 has 138 members, 28 are drafts.

Phages represented in each track:

- Track 1 : Teutsch\_7, Watermoore\_7, Cursive\_259, Sushi23\_258, EGole\_7, BlueOtter\_7, HangryHippo\_7, Larnav\_268, Watermoore\_254, Sushi23\_8, HangryHippo\_259, Lululemon\_256, Peebs\_254, Peebs\_7, Leo04\_258, PacManQ\_257, Cross\_7, Cross\_255, Lululemon\_6, Larnav\_9, EGole\_261, Leo04\_7, Pepperwood\_257, Cursive\_5, Teutsch\_254, PacManQ\_6, Tribute\_7, Tribute\_253, BlueOtter\_259, Pepperwood\_8, Samisti12\_258, Samisti12\_7
- Track 2 : Jay2Jay\_9, Jay2Jay\_264
- Track 3 : Navo\_256, WhereRU\_7, PinkiePie\_7, Braelyn\_7, Bartholomune\_7, Persimmon\_257, Persimmon\_6, Paradiddles\_7, NootNoot\_7, Squillium\_7, Braelyn\_252, Bartholomune\_257, Liandry\_256, NootNoot\_252, WhereRU\_263, Paradiddles\_248, Liandry\_7, PinkiePie\_257, Navo\_6, Squillium\_259
- Track 4 : Angela\_264, Angela\_7
- Track 5 : Anedea\_8, Anedea\_270
- Track 6 : Mildred21\_7, Mildred21\_270
- Track 7 : Warpy\_261, Warpy\_9
- Track 8 : MulchMansion\_263, LilMartin\_259, MulchMansion\_7, LilMartin\_7
- Track 9 : Evy\_245, Evy\_7, Targaryen\_258, Targaryen\_7
- Track 10 : Daubenski\_252, Daubenski\_8
- Track 11 : Bmoc\_263, Bmoc\_7
- Track 12 : MindFlayer\_6, Gibbi\_6, Karimac\_7, Starbow\_7, Battuta\_7, Jollison\_271, Spilled\_6, SaltySpittoon\_7, PumpkinSpice\_7, KentuckyRacer\_281, PumpkinSpice\_271, Starbow\_264, MindFlayer\_258, Quarant19\_268, TomSawyer\_272, JimJam\_275, Wipeout\_259, KentuckyRacer\_7, Bordeaux\_7, CeilingFan\_280, Wipeout\_6, Karimac\_265, Spelly\_273, TomSawyer\_7, CeilingFan\_6, Gibbi\_277, Bordeaux\_264, Amabiko\_7, Battuta\_264, Birchlyn\_264, Birchlyn\_4, Spilled\_274, Amabiko\_271, SaltySpittoon\_267, Jollison\_7, Spelly\_7, JimJam\_7, Quarant19\_7, IchabodCrane\_259, IchabodCrane\_6
- Track 13 : Yaboi\_269, Yaboi\_8, Genie2\_8, Stanimal\_8, Stanimal\_263, Sollertia\_8, Genie2\_263, BoomerJR\_8, BoomerJR\_263, Sollertia\_264
- Track 14 : StarPlatinum\_6, StarPlatinum\_276
- Track 15 : Wofford\_265, Elmer\_7, Wofford\_7, Elmer\_283
- Track 16 : Mugiwara\_278, Mugiwara\_6
- Track 17 : LukeCage\_269, LukeCage\_6
- Track 18 : Tomas\_7, Tomas\_263
- Track 19 : Enygma\_274, Enygma\_6

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

The start number called the most often in the published annotations is 6, it was called in 52 of the 110 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Amabiko\_271, Amabiko\_7, Battuta\_264, Battuta\_7, Birchlyn\_264, Birchlyn\_4, BoomerJR\_263, BoomerJR\_8, Bordeaux\_264, Bordeaux\_7, CeilingFan\_280, CeilingFan\_6, Elmer\_283, Elmer\_7, Enygma\_274, Enygma\_6, Genie2\_263, Genie2\_8, Gibbi\_277, Gibbi\_6, IchabodCrane\_259, IchabodCrane\_6, JimJam\_275, JimJam\_7, Jollison\_271, Jollison\_7, Karimac\_265, Karimac\_7, KentuckyRacer\_281, KentuckyRacer\_7, LukeCage\_269, LukeCage\_6, MindFlayer\_258, MindFlayer\_6, Mugiwara\_278, Mugiwara\_6, PumpkinSpice\_271, PumpkinSpice\_7, Quarant19\_268, Quarant19\_7, SaltySpittoon\_267, SaltySpittoon\_7, Sollertia\_264, Sollertia\_8, Spelly\_273, Spelly\_7, Spilled\_274, Spilled\_6, Stanimal\_263, Stanimal\_8, StarPlatinum\_276, StarPlatinum\_6, Starbow\_264, Starbow\_7, TomSawyer\_272, TomSawyer\_7, Tomas\_263, Tomas\_7, Wipeout\_259, Wipeout\_6, Wofford\_265, Wofford\_7, Yaboi\_269, Yaboi\_8,

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

- Anedea\_270, Anedea\_8, Bmoc\_263, Bmoc\_7,

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

- Angela\_264, Angela\_7, Bartholomune\_257, Bartholomune\_7, BlueOtter\_259, BlueOtter\_7, Braelyn\_252, Braelyn\_7, Cross\_255, Cross\_7, Cursive\_259, Cursive\_5, Daubenski\_252, Daubenski\_8, EGole\_261, EGole\_7, Evy\_245, Evy\_7, HangryHippo\_259, HangryHippo\_7, Jay2Jay\_264, Jay2Jay\_9, Larnav\_268, Larnav\_9, Leo04\_258, Leo04\_7, Liandry\_256, Liandry\_7, LilMartin\_259, LilMartin\_7, Lululemon\_256, Lululemon\_6, Mildred21\_270, Mildred21\_7, MulchMansion\_263, MulchMansion\_7, Navo\_256, Navo\_6, NootNoot\_252, NootNoot\_7, PacManQ\_257, PacManQ\_6, Paradiddles\_248, Paradiddles\_7, Peebs\_254, Peebs\_7, Pepperwood\_257, Pepperwood\_8, Persimmon\_257, Persimmon\_6, PinkiePie\_257, PinkiePie\_7, Samisti12\_258, Samisti12\_7, Squillium\_259, Squillium\_7, Sushi23\_258, Sushi23\_8, Targaryen\_258, Targaryen\_7, Teutsch\_254, Teutsch\_7, Tribute\_253, Tribute\_7, Warpy\_261, Warpy\_9, Watermoore\_254, Watermoore\_7, WhereRU\_263, WhereRU\_7,

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

Start 2:

- Found in 8 of 138 ( 5.8% ) of genes in pham
- Manual Annotations of this start: 4 of 110
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Jay2Jay\_264 (BE1), Jay2Jay\_9 (BE1), Warpy\_261 (BE1), Warpy\_9 (BE1),

Start 3:

- Found in 52 of 138 ( 37.7% ) of genes in pham
- Manual Annotations of this start: 38 of 110
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bartholomune\_257 (BE1), Bartholomune\_7 (BE1), BlueOtter\_259 (BE1), BlueOtter\_7 (BE1), Braelyn\_252

(BE1), Braelyn\_7 (BE1), Cross\_255 (BE1), Cross\_7 (BE1), Cursive\_259 (BE1), Cursive\_5 (BE1), EGole\_261 (BE1), EGole\_7 (BE1), HangryHippo\_259 (BE1), HangryHippo\_7 (BE1), Larnav\_268 (BE1), Larnav\_9 (BE1), Leo04\_258 (BE1), Leo04\_7 (BE1), Liandry\_256 (BE1), Liandry\_7 (BE1), Lululemon\_256 (BE1), Lululemon\_6 (BE1), Navo\_256 (BE1), Navo\_6 (BE1), NootNoot\_252 (BE1), NootNoot\_7 (BE1), PacManQ\_257 (BE1), PacManQ\_6 (BE1), Paradiddles\_248 (BE1), Paradiddles\_7 (BE1), Peebs\_254 (BE1), Peebs\_7 (BE1), Pepperwood\_257 (BE1), Pepperwood\_8 (BE1), Persimmon\_257 (BE1), Persimmon\_6 (BE1), PinkiePie\_257 (BE1), PinkiePie\_7 (BE1), Samisti12\_258 (BE1), Samisti12\_7 (BE1), Squillium\_259 (BE1), Squillium\_7 (BE1), Sushi23\_258 (BE1), Sushi23\_8 (BE1), Teutsch\_254 (BE1), Teutsch\_7 (BE1), Tribute\_253 (BE1), Tribute\_7 (BE1), Watermoore\_254 (BE1), Watermoore\_7 (BE1), WhereRU\_263 (BE1), WhereRU\_7 (BE1),

#### Start 4:

- Found in 20 of 138 ( 14.5% ) of genes in pham
- Manual Annotations of this start: 14 of 110
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Anedea\_270 (BE1), Anedea\_8 (BE1), Angela\_264 (BE1), Angela\_7 (BE1), Bmoc\_263 (BE1), Bmoc\_7 (BE1), Evy\_245 (BE1), Evy\_7 (BE1), LilMartin\_259 (BE1), LilMartin\_7 (BE1), Mildred21\_270 (BE1), Mildred21\_7 (BE1), MulchMansion\_263 (BE1), MulchMansion\_7 (BE1), Targaryen\_258 (BE1), Targaryen\_7 (BE1),

#### Start 5:

- Found in 2 of 138 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 2 of 110
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Daubenski\_252 (BE1), Daubenski\_8 (BE1),

#### Start 6:

- Found in 68 of 138 ( 49.3% ) of genes in pham
- Manual Annotations of this start: 52 of 110
- Called 94.1% of time when present
- Phage (with cluster) where this start called: Amabiko\_271 (BE2), Amabiko\_7 (BE2), Battuta\_264 (BE2), Battuta\_7 (BE2), Birchlyn\_264 (BE2), Birchlyn\_4 (BE2), BoomerJR\_263 (BE2), BoomerJR\_8 (BE2), Bordeaux\_264 (BE2), Bordeaux\_7 (BE2), CeilingFan\_280 (BE2), CeilingFan\_6 (BE2), Elmer\_283 (BE2), Elmer\_7 (BE2), Enygma\_274 (BE2), Enygma\_6 (BE2), Genie2\_263 (BE2), Genie2\_8 (BE2), Gibbi\_277 (BE2), Gibbi\_6 (BE2), IchabodCrane\_259 (BE2), IchabodCrane\_6 (BE2), JimJam\_275 (BE2), JimJam\_7 (BE2), Jollison\_271 (BE2), Jollison\_7 (BE2), Karimac\_265 (BE2), Karimac\_7 (BE2), KentuckyRacer\_281 (BE2), KentuckyRacer\_7 (BE2), LukeCage\_269 (BE2), LukeCage\_6 (BE2), MindFlayer\_258 (BE2), MindFlayer\_6 (BE2), Mugiwarra\_278 (BE2), Mugiwarra\_6 (BE2), PumpkinSpice\_271 (BE2), PumpkinSpice\_7 (BE2), Quarant19\_268 (BE2), Quarant19\_7 (BE2), SaltySpittoon\_267 (BE2), SaltySpittoon\_7 (BE2), Sollertia\_264 (BE2), Sollertia\_8 (BE2), Spelly\_273 (BE2), Spelly\_7 (BE2), Spilled\_274 (BE2), Spilled\_6 (BE2), Stanimal\_263 (BE2), Stanimal\_8 (BE2), StarPlatinum\_276 (BE2), StarPlatinum\_6 (BE2), Starbow\_264 (BE2), Starbow\_7 (BE2), TomSawyer\_272 (BE2), TomSawyer\_7 (BE2), Tomas\_263 (BE2), Tomas\_7 (BE2), Wipeout\_259 (BE2), Wipeout\_6 (BE2), Wofford\_265 (BE2), Wofford\_7 (BE2), Yaboi\_269 (BE2), Yaboi\_8 (BE2),

## Summary by clusters:

There are 2 clusters represented in this pham: BE2, BE1,

Info for manual annotations of cluster BE1:

- Start number 2 was manually annotated 4 times for cluster BE1.
- Start number 3 was manually annotated 38 times for cluster BE1.
- Start number 4 was manually annotated 14 times for cluster BE1.
- Start number 5 was manually annotated 2 times for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 6 was manually annotated 52 times for cluster BE2.

## Gene Information:

Gene: Amabiko\_7 Start: 4424, Stop: 3912, Start Num: 6

Candidate Starts for Amabiko\_7:

(Start: 6 @4424 has 52 MA's), (8, 4379), (9, 4361), (16, 4235), (27, 4046), (29, 4022), (31, 3950), (32, 3947),

Gene: Amabiko\_271 Start: 123250, Stop: 122738, Start Num: 6

Candidate Starts for Amabiko\_271:

(Start: 6 @123250 has 52 MA's), (8, 123205), (9, 123187), (16, 123061), (27, 122872), (29, 122848), (31, 122776), (32, 122773),

Gene: Anedea\_8 Start: 4666, Stop: 4148, Start Num: 4

Candidate Starts for Anedea\_8:

(Start: 4 @4666 has 14 MA's), (Start: 6 @4657 has 52 MA's), (9, 4600), (11, 4552), (19, 4405), (25, 4339), (31, 4186), (32, 4183), (33, 4174), (34, 4168),

Gene: Anedea\_270 Start: 127715, Stop: 127197, Start Num: 4

Candidate Starts for Anedea\_270:

(Start: 4 @127715 has 14 MA's), (Start: 6 @127706 has 52 MA's), (9, 127649), (11, 127601), (19, 127454), (25, 127388), (31, 127235), (32, 127232), (33, 127223), (34, 127217),

Gene: Angela\_264 Start: 127039, Stop: 126518, Start Num: 4

Candidate Starts for Angela\_264:

(Start: 4 @127039 has 14 MA's), (7, 127027), (9, 126970), (11, 126922), (16, 126838), (17, 126811), (19, 126775), (32, 126553), (33, 126544),

Gene: Angela\_7 Start: 4636, Stop: 4115, Start Num: 4

Candidate Starts for Angela\_7:

(Start: 4 @4636 has 14 MA's), (7, 4624), (9, 4567), (11, 4519), (16, 4435), (17, 4408), (19, 4372), (32, 4150), (33, 4141),

Gene: Bartholomune\_7 Start: 4222, Stop: 3704, Start Num: 3

Candidate Starts for Bartholomune\_7:

(Start: 3 @4222 has 38 MA's), (7, 4210), (9, 4153), (17, 3997), (19, 3961), (25, 3895), (30, 3790), (31, 3742), (32, 3739), (33, 3730),

Gene: Bartholomune\_257 Start: 125321, Stop: 124803, Start Num: 3

Candidate Starts for Bartholomune\_257:

(Start: 3 @125321 has 38 MA's), (7, 125309), (9, 125252), (17, 125096), (19, 125060), (25, 124994), (30, 124889), (31, 124841), (32, 124838), (33, 124829),

Gene: Battuta\_7 Start: 4424, Stop: 3912, Start Num: 6

Candidate Starts for Battuta\_7:

(Start: 6 @4424 has 52 MA's), (8, 4379), (9, 4361), (16, 4235), (27, 4046), (29, 4022), (31, 3950), (32, 3947),

Gene: Battuta\_264 Start: 122579, Stop: 122067, Start Num: 6

Candidate Starts for Battuta\_264:

(Start: 6 @122579 has 52 MA's), (8, 122534), (9, 122516), (16, 122390), (27, 122201), (29, 122177), (31, 122105), (32, 122102),

Gene: Birchlyn\_264 Start: 118368, Stop: 117856, Start Num: 6

Candidate Starts for Birchlyn\_264:

(Start: 6 @118368 has 52 MA's), (8, 118323), (9, 118305), (16, 118179), (27, 117990), (29, 117966), (31, 117894), (32, 117891),

Gene: Birchlyn\_4 Start: 2277, Stop: 1765, Start Num: 6

Candidate Starts for Birchlyn\_4:

(Start: 6 @2277 has 52 MA's), (8, 2232), (9, 2214), (16, 2088), (27, 1899), (29, 1875), (31, 1803), (32, 1800),

Gene: BlueOtter\_7 Start: 4574, Stop: 4056, Start Num: 3

Candidate Starts for BlueOtter\_7:

(Start: 3 @4574 has 38 MA's), (7, 4562), (9, 4505), (15, 4379), (16, 4376), (18, 4343), (19, 4313), (22, 4259), (25, 4247), (30, 4142), (31, 4094), (32, 4091), (33, 4082),

Gene: BlueOtter\_259 Start: 125661, Stop: 125143, Start Num: 3

Candidate Starts for BlueOtter\_259:

(Start: 3 @125661 has 38 MA's), (7, 125649), (9, 125592), (15, 125466), (16, 125463), (18, 125430), (19, 125400), (22, 125346), (25, 125334), (30, 125229), (31, 125181), (32, 125178), (33, 125169),

Gene: Bmoc\_263 Start: 126520, Stop: 126002, Start Num: 4

Candidate Starts for Bmoc\_263:

(Start: 4 @126520 has 14 MA's), (Start: 6 @126511 has 52 MA's), (9, 126454), (11, 126406), (19, 126259), (20, 126226), (31, 126040), (32, 126037), (33, 126028),

Gene: Bmoc\_7 Start: 4698, Stop: 4180, Start Num: 4

Candidate Starts for Bmoc\_7:

(Start: 4 @4698 has 14 MA's), (Start: 6 @4689 has 52 MA's), (9, 4632), (11, 4584), (19, 4437), (20, 4404), (31, 4218), (32, 4215), (33, 4206),

Gene: BoomerJR\_8 Start: 4398, Stop: 3886, Start Num: 6

Candidate Starts for BoomerJR\_8:

(Start: 6 @4398 has 52 MA's), (8, 4353), (9, 4335), (13, 4266), (20, 4113), (23, 4089), (28, 4014),

Gene: BoomerJR\_263 Start: 123186, Stop: 122674, Start Num: 6

Candidate Starts for BoomerJR\_263:

(Start: 6 @123186 has 52 MA's), (8, 123141), (9, 123123), (13, 123054), (20, 122901), (23, 122877), (28, 122802),

Gene: Bordeaux\_7 Start: 4424, Stop: 3912, Start Num: 6

Candidate Starts for Bordeaux\_7:

(Start: 6 @4424 has 52 MA's), (8, 4379), (9, 4361), (16, 4235), (27, 4046), (29, 4022), (31, 3950), (32, 3947),

Gene: Bordeaux\_264 Start: 123162, Stop: 122650, Start Num: 6

Candidate Starts for Bordeaux\_264:

(Start: 6 @123162 has 52 MA's), (8, 123117), (9, 123099), (16, 122973), (27, 122784), (29, 122760), (31, 122688), (32, 122685),

Gene: Braelyn\_7 Start: 4234, Stop: 3716, Start Num: 3

Candidate Starts for Braelyn\_7:

(Start: 3 @4234 has 38 MA's), (7, 4222), (9, 4165), (17, 4009), (19, 3973), (25, 3907), (30, 3802), (31, 3754), (32, 3751), (33, 3742),

Gene: Braelyn\_252 Start: 124644, Stop: 124126, Start Num: 3

Candidate Starts for Braelyn\_252:

(Start: 3 @124644 has 38 MA's), (7, 124632), (9, 124575), (17, 124419), (19, 124383), (25, 124317), (30, 124212), (31, 124164), (32, 124161), (33, 124152),

Gene: CeilingFan\_280 Start: 124642, Stop: 124130, Start Num: 6

Candidate Starts for CeilingFan\_280:

(Start: 6 @124642 has 52 MA's), (8, 124597), (9, 124579), (16, 124453), (27, 124264), (29, 124240), (31, 124168), (32, 124165),

Gene: CeilingFan\_6 Start: 4035, Stop: 3523, Start Num: 6

Candidate Starts for CeilingFan\_6:

(Start: 6 @4035 has 52 MA's), (8, 3990), (9, 3972), (16, 3846), (27, 3657), (29, 3633), (31, 3561), (32, 3558),

Gene: Cross\_7 Start: 4574, Stop: 4056, Start Num: 3

Candidate Starts for Cross\_7:

(Start: 3 @4574 has 38 MA's), (7, 4562), (9, 4505), (15, 4379), (16, 4376), (18, 4343), (19, 4313), (22, 4259), (25, 4247), (30, 4142), (31, 4094), (32, 4091), (33, 4082),

Gene: Cross\_255 Start: 126306, Stop: 125788, Start Num: 3

Candidate Starts for Cross\_255:

(Start: 3 @126306 has 38 MA's), (7, 126294), (9, 126237), (15, 126111), (16, 126108), (18, 126075), (19, 126045), (22, 125991), (25, 125979), (30, 125874), (31, 125826), (32, 125823), (33, 125814),

Gene: Cursive\_259 Start: 125401, Stop: 124883, Start Num: 3

Candidate Starts for Cursive\_259:

(Start: 3 @125401 has 38 MA's), (7, 125389), (9, 125332), (15, 125206), (16, 125203), (18, 125170), (19, 125140), (22, 125086), (25, 125074), (30, 124969), (31, 124921), (32, 124918), (33, 124909),

Gene: Cursive\_5 Start: 3392, Stop: 2874, Start Num: 3

Candidate Starts for Cursive\_5:

(Start: 3 @3392 has 38 MA's), (7, 3380), (9, 3323), (15, 3197), (16, 3194), (18, 3161), (19, 3131), (22, 3077), (25, 3065), (30, 2960), (31, 2912), (32, 2909), (33, 2900),

Gene: Daubenski\_252 Start: 126972, Stop: 126457, Start Num: 5

Candidate Starts for Daubenski\_252:

(Start: 5 @126972 has 2 MA's), (7, 126966), (9, 126906), (12, 126855), (18, 126744), (19, 126714), (25, 126648), (26, 126633), (31, 126495), (32, 126492), (33, 126483),

Gene: Daubenski\_8 Start: 4596, Stop: 4081, Start Num: 5

Candidate Starts for Daubenski\_8:

(Start: 5 @4596 has 2 MA's), (7, 4590), (9, 4530), (12, 4479), (18, 4368), (19, 4338), (25, 4272), (26, 4257), (31, 4119), (32, 4116), (33, 4107),

Gene: EGole\_7 Start: 4994, Stop: 4476, Start Num: 3

Candidate Starts for EGole\_7:

(Start: 3 @4994 has 38 MA's), (7, 4982), (9, 4925), (15, 4799), (16, 4796), (18, 4763), (19, 4733), (22, 4679), (25, 4667), (30, 4562), (31, 4514), (32, 4511), (33, 4502),

Gene: EGole\_261 Start: 129306, Stop: 128788, Start Num: 3

Candidate Starts for EGole\_261:

(Start: 3 @129306 has 38 MA's), (7, 129294), (9, 129237), (15, 129111), (16, 129108), (18, 129075), (19, 129045), (22, 128991), (25, 128979), (30, 128874), (31, 128826), (32, 128823), (33, 128814),

Gene: Elmer\_7 Start: 4303, Stop: 3791, Start Num: 6

Candidate Starts for Elmer\_7:

(Start: 6 @4303 has 52 MA's), (8, 4258), (9, 4240), (13, 4171), (20, 4018), (23, 3994), (27, 3925), (29, 3901), (31, 3829), (32, 3826),

Gene: Elmer\_283 Start: 126671, Stop: 126159, Start Num: 6

Candidate Starts for Elmer\_283:

(Start: 6 @126671 has 52 MA's), (8, 126626), (9, 126608), (13, 126539), (20, 126386), (23, 126362), (27, 126293), (29, 126269), (31, 126197), (32, 126194),

Gene: Enygma\_274 Start: 126406, Stop: 125894, Start Num: 6

Candidate Starts for Enygma\_274:

(Start: 6 @126406 has 52 MA's), (8, 126361), (9, 126343), (13, 126274), (16, 126217), (21, 126106), (23, 126097), (30, 125980),

Gene: Enygma\_6 Start: 3982, Stop: 3470, Start Num: 6

Candidate Starts for Enygma\_6:

(Start: 6 @3982 has 52 MA's), (8, 3937), (9, 3919), (13, 3850), (16, 3793), (21, 3682), (23, 3673), (30, 3556),

Gene: Evy\_245 Start: 126422, Stop: 125901, Start Num: 4

Candidate Starts for Evy\_245:

(Start: 2 @126479 has 4 MA's), (Start: 4 @126422 has 14 MA's), (7, 126410), (9, 126353), (11, 126305), (16, 126221), (17, 126194), (25, 126092), (30, 125987), (31, 125939), (32, 125936), (33, 125927),

Gene: Evy\_7 Start: 4693, Stop: 4172, Start Num: 4

Candidate Starts for Evy\_7:

(Start: 2 @4750 has 4 MA's), (Start: 4 @4693 has 14 MA's), (7, 4681), (9, 4624), (11, 4576), (16, 4492), (17, 4465), (25, 4363), (30, 4258), (31, 4210), (32, 4207), (33, 4198),

Gene: Genie2\_8 Start: 4398, Stop: 3886, Start Num: 6

Candidate Starts for Genie2\_8:

(Start: 6 @4398 has 52 MA's), (8, 4353), (9, 4335), (13, 4266), (20, 4113), (23, 4089), (28, 4014),



Gene: Genie2\_263 Start: 123299, Stop: 122787, Start Num: 6

Candidate Starts for Genie2\_263:

(Start: 6 @123299 has 52 MA's), (8, 123254), (9, 123236), (13, 123167), (20, 123014), (23, 122990), (28, 122915),

Gene: Gibbi\_6 Start: 4035, Stop: 3523, Start Num: 6

Candidate Starts for Gibbi\_6:

(Start: 6 @4035 has 52 MA's), (8, 3990), (9, 3972), (16, 3846), (27, 3657), (29, 3633), (31, 3561), (32, 3558),

Gene: Gibbi\_277 Start: 124135, Stop: 123623, Start Num: 6

Candidate Starts for Gibbi\_277:

(Start: 6 @124135 has 52 MA's), (8, 124090), (9, 124072), (16, 123946), (27, 123757), (29, 123733), (31, 123661), (32, 123658),

Gene: HangryHippo\_7 Start: 4574, Stop: 4056, Start Num: 3

Candidate Starts for HangryHippo\_7:

(Start: 3 @4574 has 38 MA's), (7, 4562), (9, 4505), (15, 4379), (16, 4376), (18, 4343), (19, 4313), (22, 4259), (25, 4247), (30, 4142), (31, 4094), (32, 4091), (33, 4082),

Gene: HangryHippo\_259 Start: 125661, Stop: 125143, Start Num: 3

Candidate Starts for HangryHippo\_259:

(Start: 3 @125661 has 38 MA's), (7, 125649), (9, 125592), (15, 125466), (16, 125463), (18, 125430), (19, 125400), (22, 125346), (25, 125334), (30, 125229), (31, 125181), (32, 125178), (33, 125169),

Gene: IchabodCrane\_259 Start: 122575, Stop: 122063, Start Num: 6

Candidate Starts for IchabodCrane\_259:

(Start: 6 @122575 has 52 MA's), (8, 122530), (9, 122512), (16, 122386), (27, 122197), (29, 122173), (31, 122101), (32, 122098),

Gene: IchabodCrane\_6 Start: 4032, Stop: 3520, Start Num: 6

Candidate Starts for IchabodCrane\_6:

(Start: 6 @4032 has 52 MA's), (8, 3987), (9, 3969), (16, 3843), (27, 3654), (29, 3630), (31, 3558), (32, 3555),

Gene: Jay2Jay\_9 Start: 4454, Stop: 3876, Start Num: 2

Candidate Starts for Jay2Jay\_9:

(Start: 2 @4454 has 4 MA's), (Start: 4 @4397 has 14 MA's), (7, 4385), (9, 4328), (11, 4280), (16, 4196), (17, 4169), (25, 4067), (30, 3962), (31, 3914), (32, 3911), (33, 3902),

Gene: Jay2Jay\_264 Start: 126547, Stop: 125969, Start Num: 2

Candidate Starts for Jay2Jay\_264:

(Start: 2 @126547 has 4 MA's), (Start: 4 @126490 has 14 MA's), (7, 126478), (9, 126421), (11, 126373), (16, 126289), (17, 126262), (25, 126160), (30, 126055), (31, 126007), (32, 126004), (33, 125995),

Gene: JimJam\_275 Start: 125959, Stop: 125447, Start Num: 6

Candidate Starts for JimJam\_275:

(Start: 6 @125959 has 52 MA's), (8, 125914), (9, 125896), (16, 125770), (27, 125581), (29, 125557), (31, 125485), (32, 125482),

Gene: JimJam\_7 Start: 4423, Stop: 3911, Start Num: 6

Candidate Starts for JimJam\_7:

(Start: 6 @4423 has 52 MA's), (8, 4378), (9, 4360), (16, 4234), (27, 4045), (29, 4021), (31, 3949), (32, 3946),

Gene: Jollison\_271 Start: 123099, Stop: 122587, Start Num: 6

Candidate Starts for Jollison\_271:

(Start: 6 @123099 has 52 MA's), (8, 123054), (9, 123036), (16, 122910), (27, 122721), (29, 122697), (31, 122625), (32, 122622),

Gene: Jollison\_7 Start: 4424, Stop: 3912, Start Num: 6

Candidate Starts for Jollison\_7:

(Start: 6 @4424 has 52 MA's), (8, 4379), (9, 4361), (16, 4235), (27, 4046), (29, 4022), (31, 3950), (32, 3947),

Gene: Karimac\_7 Start: 4426, Stop: 3914, Start Num: 6

Candidate Starts for Karimac\_7:

(Start: 6 @4426 has 52 MA's), (8, 4381), (9, 4363), (16, 4237), (27, 4048), (29, 4024), (31, 3952), (32, 3949),

Gene: Karimac\_265 Start: 123745, Stop: 123233, Start Num: 6

Candidate Starts for Karimac\_265:

(Start: 6 @123745 has 52 MA's), (8, 123700), (9, 123682), (16, 123556), (27, 123367), (29, 123343), (31, 123271), (32, 123268),

Gene: KentuckyRacer\_281 Start: 125487, Stop: 124975, Start Num: 6

Candidate Starts for KentuckyRacer\_281:

(Start: 6 @125487 has 52 MA's), (8, 125442), (9, 125424), (16, 125298), (27, 125109), (29, 125085), (31, 125013), (32, 125010),

Gene: KentuckyRacer\_7 Start: 4036, Stop: 3524, Start Num: 6

Candidate Starts for KentuckyRacer\_7:

(Start: 6 @4036 has 52 MA's), (8, 3991), (9, 3973), (16, 3847), (27, 3658), (29, 3634), (31, 3562), (32, 3559),

Gene: Larnav\_268 Start: 126579, Stop: 126061, Start Num: 3

Candidate Starts for Larnav\_268:

(Start: 3 @126579 has 38 MA's), (7, 126567), (9, 126510), (15, 126384), (16, 126381), (18, 126348), (19, 126318), (22, 126264), (25, 126252), (30, 126147), (31, 126099), (32, 126096), (33, 126087),

Gene: Larnav\_9 Start: 4574, Stop: 4056, Start Num: 3

Candidate Starts for Larnav\_9:

(Start: 3 @4574 has 38 MA's), (7, 4562), (9, 4505), (15, 4379), (16, 4376), (18, 4343), (19, 4313), (22, 4259), (25, 4247), (30, 4142), (31, 4094), (32, 4091), (33, 4082),

Gene: Leo04\_258 Start: 126691, Stop: 126173, Start Num: 3

Candidate Starts for Leo04\_258:

(Start: 3 @126691 has 38 MA's), (7, 126679), (9, 126622), (15, 126496), (16, 126493), (18, 126460), (19, 126430), (22, 126376), (25, 126364), (30, 126259), (31, 126211), (32, 126208), (33, 126199),

Gene: Leo04\_7 Start: 4573, Stop: 4055, Start Num: 3

Candidate Starts for Leo04\_7:

(Start: 3 @4573 has 38 MA's), (7, 4561), (9, 4504), (15, 4378), (16, 4375), (18, 4342), (19, 4312), (22, 4258), (25, 4246), (30, 4141), (31, 4093), (32, 4090), (33, 4081),

Gene: Liandry\_256 Start: 125743, Stop: 125225, Start Num: 3

Candidate Starts for Liandry\_256:

(Start: 3 @125743 has 38 MA's), (7, 125731), (9, 125674), (17, 125518), (19, 125482), (25, 125416), (30, 125311), (31, 125263), (32, 125260), (33, 125251),

Gene: Liandry\_7 Start: 4222, Stop: 3704, Start Num: 3

Candidate Starts for Liandry\_7:

(Start: 3 @4222 has 38 MA's), (7, 4210), (9, 4153), (17, 3997), (19, 3961), (25, 3895), (30, 3790), (31, 3742), (32, 3739), (33, 3730),

Gene: LilMartin\_259 Start: 125954, Stop: 125433, Start Num: 4

Candidate Starts for LilMartin\_259:

(Start: 4 @125954 has 14 MA's), (7, 125942), (9, 125885), (11, 125837), (16, 125753), (17, 125726), (25, 125624), (31, 125471), (32, 125468), (33, 125459),

Gene: LilMartin\_7 Start: 4610, Stop: 4089, Start Num: 4

Candidate Starts for LilMartin\_7:

(Start: 4 @4610 has 14 MA's), (7, 4598), (9, 4541), (11, 4493), (16, 4409), (17, 4382), (25, 4280), (31, 4127), (32, 4124), (33, 4115),

Gene: LukeCage\_269 Start: 124930, Stop: 124418, Start Num: 6

Candidate Starts for LukeCage\_269:

(Start: 6 @124930 has 52 MA's), (8, 124885), (9, 124867), (10, 124861), (13, 124798), (14, 124795), (23, 124621), (24, 124615), (27, 124552), (29, 124528), (31, 124456), (32, 124453),

Gene: LukeCage\_6 Start: 4026, Stop: 3514, Start Num: 6

Candidate Starts for LukeCage\_6:

(Start: 6 @4026 has 52 MA's), (8, 3981), (9, 3963), (10, 3957), (13, 3894), (14, 3891), (23, 3717), (24, 3711), (27, 3648), (29, 3624), (31, 3552), (32, 3549),

Gene: Lululemon\_256 Start: 124846, Stop: 124328, Start Num: 3

Candidate Starts for Lululemon\_256:

(Start: 3 @124846 has 38 MA's), (7, 124834), (9, 124777), (15, 124651), (16, 124648), (18, 124615), (19, 124585), (22, 124531), (25, 124519), (30, 124414), (31, 124366), (32, 124363), (33, 124354),

Gene: Lululemon\_6 Start: 3954, Stop: 3436, Start Num: 3

Candidate Starts for Lululemon\_6:

(Start: 3 @3954 has 38 MA's), (7, 3942), (9, 3885), (15, 3759), (16, 3756), (18, 3723), (19, 3693), (22, 3639), (25, 3627), (30, 3522), (31, 3474), (32, 3471), (33, 3462),

Gene: Mildred21\_7 Start: 4196, Stop: 3675, Start Num: 4

Candidate Starts for Mildred21\_7:

(Start: 4 @4196 has 14 MA's), (7, 4184), (9, 4127), (11, 4079), (17, 3968), (25, 3866), (31, 3713), (32, 3710), (33, 3701),

Gene: Mildred21\_270 Start: 125354, Stop: 124833, Start Num: 4

Candidate Starts for Mildred21\_270:

(Start: 4 @125354 has 14 MA's), (7, 125342), (9, 125285), (11, 125237), (17, 125126), (25, 125024), (31, 124871), (32, 124868), (33, 124859),

Gene: MindFlayer\_6 Start: 4034, Stop: 3522, Start Num: 6

Candidate Starts for MindFlayer\_6:

(Start: 6 @4034 has 52 MA's), (8, 3989), (9, 3971), (16, 3845), (27, 3656), (29, 3632), (31, 3560), (32, 3557),

Gene: MindFlayer\_258 Start: 122094, Stop: 121582, Start Num: 6

Candidate Starts for MindFlayer\_258:

(Start: 6 @122094 has 52 MA's), (8, 122049), (9, 122031), (16, 121905), (27, 121716), (29, 121692), (31, 121620), (32, 121617),

Gene: Mugiwara\_278 Start: 125399, Stop: 124887, Start Num: 6

Candidate Starts for Mugiwara\_278:

(Start: 6 @125399 has 52 MA's), (8, 125354), (9, 125336), (14, 125264), (23, 125090), (29, 124997), (31, 124925), (32, 124922),

Gene: Mugiwara\_6 Start: 4014, Stop: 3502, Start Num: 6

Candidate Starts for Mugiwara\_6:

(Start: 6 @4014 has 52 MA's), (8, 3969), (9, 3951), (14, 3879), (23, 3705), (29, 3612), (31, 3540), (32, 3537),

Gene: MulchMansion\_263 Start: 127588, Stop: 127067, Start Num: 4

Candidate Starts for MulchMansion\_263:

(Start: 4 @127588 has 14 MA's), (7, 127576), (9, 127519), (11, 127471), (16, 127387), (17, 127360), (25, 127258), (31, 127105), (32, 127102), (33, 127093),

Gene: MulchMansion\_7 Start: 4610, Stop: 4089, Start Num: 4

Candidate Starts for MulchMansion\_7:

(Start: 4 @4610 has 14 MA's), (7, 4598), (9, 4541), (11, 4493), (16, 4409), (17, 4382), (25, 4280), (31, 4127), (32, 4124), (33, 4115),

Gene: Navo\_256 Start: 123645, Stop: 123127, Start Num: 3

Candidate Starts for Navo\_256:

(Start: 3 @123645 has 38 MA's), (7, 123633), (9, 123576), (17, 123420), (19, 123384), (25, 123318), (30, 123213), (31, 123165), (32, 123162), (33, 123153),

Gene: Navo\_6 Start: 4020, Stop: 3502, Start Num: 3

Candidate Starts for Navo\_6:

(Start: 3 @4020 has 38 MA's), (7, 4008), (9, 3951), (17, 3795), (19, 3759), (25, 3693), (30, 3588), (31, 3540), (32, 3537), (33, 3528),

Gene: NootNoot\_7 Start: 4232, Stop: 3714, Start Num: 3

Candidate Starts for NootNoot\_7:

(Start: 3 @4232 has 38 MA's), (7, 4220), (9, 4163), (17, 4007), (19, 3971), (25, 3905), (30, 3800), (31, 3752), (32, 3749), (33, 3740),

Gene: NootNoot\_252 Start: 124531, Stop: 124013, Start Num: 3

Candidate Starts for NootNoot\_252:

(Start: 3 @124531 has 38 MA's), (7, 124519), (9, 124462), (17, 124306), (19, 124270), (25, 124204), (30, 124099), (31, 124051), (32, 124048), (33, 124039),

Gene: PacManQ\_257 Start: 124846, Stop: 124328, Start Num: 3

Candidate Starts for PacManQ\_257:

(Start: 3 @124846 has 38 MA's), (7, 124834), (9, 124777), (15, 124651), (16, 124648), (18, 124615), (19, 124585), (22, 124531), (25, 124519), (30, 124414), (31, 124366), (32, 124363), (33, 124354),

Gene: PacManQ\_6 Start: 3954, Stop: 3436, Start Num: 3

Candidate Starts for PacManQ\_6:

(Start: 3 @3954 has 38 MA's), (7, 3942), (9, 3885), (15, 3759), (16, 3756), (18, 3723), (19, 3693), (22, 3639), (25, 3627), (30, 3522), (31, 3474), (32, 3471), (33, 3462),

Gene: Paradiddles\_7 Start: 4222, Stop: 3704, Start Num: 3

Candidate Starts for Paradiddles\_7:

(Start: 3 @4222 has 38 MA's), (7, 4210), (9, 4153), (17, 3997), (19, 3961), (25, 3895), (30, 3790), (31, 3742), (32, 3739), (33, 3730),

Gene: Paradiddles\_248 Start: 126930, Stop: 126412, Start Num: 3

Candidate Starts for Paradiddles\_248:

(Start: 3 @126930 has 38 MA's), (7, 126918), (9, 126861), (17, 126705), (19, 126669), (25, 126603), (30, 126498), (31, 126450), (32, 126447), (33, 126438),

Gene: Peebs\_254 Start: 126548, Stop: 126030, Start Num: 3

Candidate Starts for Peebs\_254:

(Start: 3 @126548 has 38 MA's), (7, 126536), (9, 126479), (15, 126353), (16, 126350), (18, 126317), (19, 126287), (22, 126233), (25, 126221), (30, 126116), (31, 126068), (32, 126065), (33, 126056),

Gene: Peebs\_7 Start: 4573, Stop: 4055, Start Num: 3

Candidate Starts for Peebs\_7:

(Start: 3 @4573 has 38 MA's), (7, 4561), (9, 4504), (15, 4378), (16, 4375), (18, 4342), (19, 4312), (22, 4258), (25, 4246), (30, 4141), (31, 4093), (32, 4090), (33, 4081),

Gene: Pepperwood\_257 Start: 126513, Stop: 125995, Start Num: 3

Candidate Starts for Pepperwood\_257:

(Start: 3 @126513 has 38 MA's), (7, 126501), (9, 126444), (15, 126318), (16, 126315), (18, 126282), (19, 126252), (22, 126198), (25, 126186), (30, 126081), (31, 126033), (32, 126030), (33, 126021),

Gene: Pepperwood\_8 Start: 4728, Stop: 4210, Start Num: 3

Candidate Starts for Pepperwood\_8:

(Start: 3 @4728 has 38 MA's), (7, 4716), (9, 4659), (15, 4533), (16, 4530), (18, 4497), (19, 4467), (22, 4413), (25, 4401), (30, 4296), (31, 4248), (32, 4245), (33, 4236),

Gene: Persimmon\_257 Start: 124831, Stop: 124313, Start Num: 3

Candidate Starts for Persimmon\_257:

(Start: 3 @124831 has 38 MA's), (7, 124819), (9, 124762), (17, 124606), (19, 124570), (25, 124504), (30, 124399), (31, 124351), (32, 124348), (33, 124339),

Gene: Persimmon\_6 Start: 4020, Stop: 3502, Start Num: 3

Candidate Starts for Persimmon\_6:

(Start: 3 @4020 has 38 MA's), (7, 4008), (9, 3951), (17, 3795), (19, 3759), (25, 3693), (30, 3588), (31, 3540), (32, 3537), (33, 3528),

Gene: PinkiePie\_7 Start: 4222, Stop: 3704, Start Num: 3

Candidate Starts for PinkiePie\_7:

(Start: 3 @4222 has 38 MA's), (7, 4210), (9, 4153), (17, 3997), (19, 3961), (25, 3895), (30, 3790), (31, 3742), (32, 3739), (33, 3730),

Gene: PinkiePie\_257 Start: 125743, Stop: 125225, Start Num: 3

Candidate Starts for PinkiePie\_257:

(Start: 3 @125743 has 38 MA's), (7, 125731), (9, 125674), (17, 125518), (19, 125482), (25, 125416), (30, 125311), (31, 125263), (32, 125260), (33, 125251),

Gene: PumpkinSpice\_7 Start: 4424, Stop: 3912, Start Num: 6

Candidate Starts for PumpkinSpice\_7:

(Start: 6 @4424 has 52 MA's), (8, 4379), (9, 4361), (16, 4235), (27, 4046), (29, 4022), (31, 3950), (32, 3947),

Gene: PumpkinSpice\_271 Start: 124316, Stop: 123804, Start Num: 6

Candidate Starts for PumpkinSpice\_271:

(Start: 6 @124316 has 52 MA's), (8, 124271), (9, 124253), (16, 124127), (27, 123938), (29, 123914), (31, 123842), (32, 123839),

Gene: Quaran19\_268 Start: 123606, Stop: 123094, Start Num: 6

Candidate Starts for Quaran19\_268:

(Start: 6 @123606 has 52 MA's), (8, 123561), (9, 123543), (16, 123417), (27, 123228), (29, 123204), (31, 123132), (32, 123129),

Gene: Quaran19\_7 Start: 4424, Stop: 3912, Start Num: 6

Candidate Starts for Quaran19\_7:

(Start: 6 @4424 has 52 MA's), (8, 4379), (9, 4361), (16, 4235), (27, 4046), (29, 4022), (31, 3950), (32, 3947),

Gene: SaltySpittoon\_7 Start: 4424, Stop: 3912, Start Num: 6

Candidate Starts for SaltySpittoon\_7:

(Start: 6 @4424 has 52 MA's), (8, 4379), (9, 4361), (16, 4235), (27, 4046), (29, 4022), (31, 3950), (32, 3947),

Gene: SaltySpittoon\_267 Start: 122688, Stop: 122176, Start Num: 6

Candidate Starts for SaltySpittoon\_267:

(Start: 6 @122688 has 52 MA's), (8, 122643), (9, 122625), (16, 122499), (27, 122310), (29, 122286), (31, 122214), (32, 122211),

Gene: Samisti12\_258 Start: 127617, Stop: 127099, Start Num: 3

Candidate Starts for Samisti12\_258:

(Start: 3 @127617 has 38 MA's), (7, 127605), (9, 127548), (15, 127422), (16, 127419), (18, 127386), (19, 127356), (22, 127302), (25, 127290), (30, 127185), (31, 127137), (32, 127134), (33, 127125),

Gene: Samisti12\_7 Start: 4573, Stop: 4055, Start Num: 3

Candidate Starts for Samisti12\_7:

(Start: 3 @4573 has 38 MA's), (7, 4561), (9, 4504), (15, 4378), (16, 4375), (18, 4342), (19, 4312), (22, 4258), (25, 4246), (30, 4141), (31, 4093), (32, 4090), (33, 4081),

Gene: Sollertia\_8 Start: 4398, Stop: 3886, Start Num: 6

Candidate Starts for Sollertia\_8:

(Start: 6 @4398 has 52 MA's), (8, 4353), (9, 4335), (13, 4266), (20, 4113), (23, 4089), (28, 4014),

Gene: Sollertia\_264 Start: 123288, Stop: 122776, Start Num: 6

Candidate Starts for Sollertia\_264:

(Start: 6 @123288 has 52 MA's), (8, 123243), (9, 123225), (13, 123156), (20, 123003), (23, 122979), (28, 122904),

Gene: Spelly\_273 Start: 123228, Stop: 122716, Start Num: 6

Candidate Starts for Spelly\_273:

(Start: 6 @123228 has 52 MA's), (8, 123183), (9, 123165), (16, 123039), (27, 122850), (29, 122826), (31, 122754), (32, 122751),

Gene: Spelly\_7 Start: 4424, Stop: 3912, Start Num: 6

Candidate Starts for Spelly\_7:

(Start: 6 @4424 has 52 MA's), (8, 4379), (9, 4361), (16, 4235), (27, 4046), (29, 4022), (31, 3950), (32, 3947),

Gene: Spilled\_6 Start: 4034, Stop: 3522, Start Num: 6

Candidate Starts for Spilled\_6:

(Start: 6 @4034 has 52 MA's), (8, 3989), (9, 3971), (16, 3845), (27, 3656), (29, 3632), (31, 3560), (32, 3557),

Gene: Spilled\_274 Start: 124503, Stop: 123991, Start Num: 6

Candidate Starts for Spilled\_274:

(Start: 6 @124503 has 52 MA's), (8, 124458), (9, 124440), (16, 124314), (27, 124125), (29, 124101), (31, 124029), (32, 124026),

Gene: Squillium\_7 Start: 4222, Stop: 3704, Start Num: 3

Candidate Starts for Squillium\_7:

(Start: 3 @4222 has 38 MA's), (7, 4210), (9, 4153), (17, 3997), (19, 3961), (25, 3895), (30, 3790), (31, 3742), (32, 3739), (33, 3730),

Gene: Squillium\_259 Start: 125746, Stop: 125228, Start Num: 3

Candidate Starts for Squillium\_259:

(Start: 3 @125746 has 38 MA's), (7, 125734), (9, 125677), (17, 125521), (19, 125485), (25, 125419), (30, 125314), (31, 125266), (32, 125263), (33, 125254),

Gene: Stanimal\_8 Start: 4398, Stop: 3886, Start Num: 6

Candidate Starts for Stanimal\_8:

(Start: 6 @4398 has 52 MA's), (8, 4353), (9, 4335), (13, 4266), (20, 4113), (23, 4089), (28, 4014),

Gene: Stanimal\_263 Start: 123672, Stop: 123160, Start Num: 6

Candidate Starts for Stanimal\_263:

(Start: 6 @123672 has 52 MA's), (8, 123627), (9, 123609), (13, 123540), (20, 123387), (23, 123363), (28, 123288),

Gene: StarPlatinum\_6 Start: 4168, Stop: 3656, Start Num: 6

Candidate Starts for StarPlatinum\_6:

(Start: 6 @4168 has 52 MA's), (9, 4105), (13, 4036), (23, 3859), (29, 3766), (31, 3694), (32, 3691),

Gene: StarPlatinum\_276 Start: 125855, Stop: 125343, Start Num: 6

Candidate Starts for StarPlatinum\_276:

(Start: 6 @125855 has 52 MA's), (9, 125792), (13, 125723), (23, 125546), (29, 125453), (31, 125381), (32, 125378),

Gene: Starbow\_7 Start: 4424, Stop: 3912, Start Num: 6

Candidate Starts for Starbow\_7:

(Start: 6 @4424 has 52 MA's), (8, 4379), (9, 4361), (16, 4235), (27, 4046), (29, 4022), (31, 3950), (32, 3947),

Gene: Starbow\_264 Start: 123272, Stop: 122760, Start Num: 6

Candidate Starts for Starbow\_264:

(Start: 6 @123272 has 52 MA's), (8, 123227), (9, 123209), (16, 123083), (27, 122894), (29, 122870), (31, 122798), (32, 122795),

Gene: Sushi23\_258 Start: 127417, Stop: 126899, Start Num: 3

Candidate Starts for Sushi23\_258:

(Start: 3 @127417 has 38 MA's), (7, 127405), (9, 127348), (15, 127222), (16, 127219), (18, 127186), (19, 127156), (22, 127102), (25, 127090), (30, 126985), (31, 126937), (32, 126934), (33, 126925),

Gene: Sushi23\_8 Start: 4574, Stop: 4056, Start Num: 3

Candidate Starts for Sushi23\_8:

(Start: 3 @4574 has 38 MA's), (7, 4562), (9, 4505), (15, 4379), (16, 4376), (18, 4343), (19, 4313), (22, 4259), (25, 4247), (30, 4142), (31, 4094), (32, 4091), (33, 4082),

Gene: Targaryen\_258 Start: 128369, Stop: 127848, Start Num: 4

Candidate Starts for Targaryen\_258:

(Start: 2 @128426 has 4 MA's), (Start: 4 @128369 has 14 MA's), (7, 128357), (9, 128300), (11, 128252), (16, 128168), (17, 128141), (25, 128039), (30, 127934), (31, 127886), (32, 127883), (33, 127874),

Gene: Targaryen\_7 Start: 4693, Stop: 4172, Start Num: 4

Candidate Starts for Targaryen\_7:

(Start: 2 @4750 has 4 MA's), (Start: 4 @4693 has 14 MA's), (7, 4681), (9, 4624), (11, 4576), (16, 4492), (17, 4465), (25, 4363), (30, 4258), (31, 4210), (32, 4207), (33, 4198),

Gene: Deutsch\_7 Start: 4575, Stop: 4057, Start Num: 3

Candidate Starts for Deutsch\_7:

(Start: 3 @4575 has 38 MA's), (7, 4563), (9, 4506), (15, 4380), (16, 4377), (18, 4344), (19, 4314), (22, 4260), (25, 4248), (30, 4143), (31, 4095), (32, 4092), (33, 4083),

Gene: Deutsch\_254 Start: 126784, Stop: 126266, Start Num: 3

Candidate Starts for Deutsch\_254:

(Start: 3 @126784 has 38 MA's), (7, 126772), (9, 126715), (15, 126589), (16, 126586), (18, 126553), (19, 126523), (22, 126469), (25, 126457), (30, 126352), (31, 126304), (32, 126301), (33, 126292),

Gene: TomSawyer\_272 Start: 125797, Stop: 125285, Start Num: 6

Candidate Starts for TomSawyer\_272:

(Start: 6 @125797 has 52 MA's), (8, 125752), (9, 125734), (16, 125608), (27, 125419), (29, 125395), (31, 125323), (32, 125320),

Gene: TomSawyer\_7 Start: 4018, Stop: 3506, Start Num: 6

Candidate Starts for TomSawyer\_7:

(Start: 6 @4018 has 52 MA's), (8, 3973), (9, 3955), (16, 3829), (27, 3640), (29, 3616), (31, 3544), (32, 3541),

Gene: Tomas\_7 Start: 4430, Stop: 3921, Start Num: 6

Candidate Starts for Tomas\_7:

(1, 4520), (Start: 6 @4430 has 52 MA's), (8, 4385), (9, 4367), (11, 4319), (12, 4316), (18, 4211), (27, 4055), (28, 4049), (32, 3956),

Gene: Tomas\_263 Start: 126137, Stop: 125628, Start Num: 6

Candidate Starts for Tomas\_263:



(1, 126227), (Start: 6 @126137 has 52 MA's), (8, 126092), (9, 126074), (11, 126026), (12, 126023), (18, 125918), (27, 125762), (28, 125756), (32, 125663),

Gene: Tribute\_7 Start: 4574, Stop: 4056, Start Num: 3

Candidate Starts for Tribute\_7:

(Start: 3 @4574 has 38 MA's), (7, 4562), (9, 4505), (15, 4379), (16, 4376), (18, 4343), (19, 4313), (22, 4259), (25, 4247), (30, 4142), (31, 4094), (32, 4091), (33, 4082),

Gene: Tribute\_253 Start: 127118, Stop: 126600, Start Num: 3

Candidate Starts for Tribute\_253:

(Start: 3 @127118 has 38 MA's), (7, 127106), (9, 127049), (15, 126923), (16, 126920), (18, 126887), (19, 126857), (22, 126803), (25, 126791), (30, 126686), (31, 126638), (32, 126635), (33, 126626),

Gene: Warpy\_261 Start: 126013, Stop: 125435, Start Num: 2

Candidate Starts for Warpy\_261:

(Start: 2 @126013 has 4 MA's), (Start: 4 @125956 has 14 MA's), (7, 125944), (9, 125887), (11, 125839), (17, 125728), (25, 125626), (30, 125521), (31, 125473), (32, 125470), (33, 125461),

Gene: Warpy\_9 Start: 4475, Stop: 3897, Start Num: 2

Candidate Starts for Warpy\_9:

(Start: 2 @4475 has 4 MA's), (Start: 4 @4418 has 14 MA's), (7, 4406), (9, 4349), (11, 4301), (17, 4190), (25, 4088), (30, 3983), (31, 3935), (32, 3932), (33, 3923),

Gene: Watermoore\_7 Start: 4575, Stop: 4057, Start Num: 3

Candidate Starts for Watermoore\_7:

(Start: 3 @4575 has 38 MA's), (7, 4563), (9, 4506), (15, 4380), (16, 4377), (18, 4344), (19, 4314), (22, 4260), (25, 4248), (30, 4143), (31, 4095), (32, 4092), (33, 4083),

Gene: Watermoore\_254 Start: 127171, Stop: 126653, Start Num: 3

Candidate Starts for Watermoore\_254:

(Start: 3 @127171 has 38 MA's), (7, 127159), (9, 127102), (15, 126976), (16, 126973), (18, 126940), (19, 126910), (22, 126856), (25, 126844), (30, 126739), (31, 126691), (32, 126688), (33, 126679),

Gene: WhereRU\_7 Start: 4020, Stop: 3502, Start Num: 3

Candidate Starts for WhereRU\_7:

(Start: 3 @4020 has 38 MA's), (7, 4008), (9, 3951), (17, 3795), (19, 3759), (25, 3693), (30, 3588), (31, 3540), (32, 3537), (33, 3528),

Gene: WhereRU\_263 Start: 125165, Stop: 124647, Start Num: 3

Candidate Starts for WhereRU\_263:

(Start: 3 @125165 has 38 MA's), (7, 125153), (9, 125096), (17, 124940), (19, 124904), (25, 124838), (30, 124733), (31, 124685), (32, 124682), (33, 124673),

Gene: Wipeout\_259 Start: 124770, Stop: 124258, Start Num: 6

Candidate Starts for Wipeout\_259:

(Start: 6 @124770 has 52 MA's), (8, 124725), (9, 124707), (16, 124581), (27, 124392), (29, 124368), (31, 124296), (32, 124293),

Gene: Wipeout\_6 Start: 4039, Stop: 3527, Start Num: 6

Candidate Starts for Wipeout\_6:

(Start: 6 @4039 has 52 MA's), (8, 3994), (9, 3976), (16, 3850), (27, 3661), (29, 3637), (31, 3565), (32, 3562),

Gene: Wofford\_265 Start: 126101, Stop: 125589, Start Num: 6

Candidate Starts for Wofford\_265:

(Start: 6 @126101 has 52 MA's), (8, 126056), (9, 126038), (13, 125969), (20, 125816), (23, 125792), (27, 125723), (29, 125699), (31, 125627), (32, 125624),

Gene: Wofford\_7 Start: 4308, Stop: 3796, Start Num: 6

Candidate Starts for Wofford\_7:

(Start: 6 @4308 has 52 MA's), (8, 4263), (9, 4245), (13, 4176), (20, 4023), (23, 3999), (27, 3930), (29, 3906), (31, 3834), (32, 3831),

Gene: Yaboi\_269 Start: 123216, Stop: 122704, Start Num: 6

Candidate Starts for Yaboi\_269:

(Start: 6 @123216 has 52 MA's), (8, 123171), (9, 123153), (13, 123084), (20, 122931), (23, 122907), (28, 122832),

Gene: Yaboi\_8 Start: 4398, Stop: 3886, Start Num: 6

Candidate Starts for Yaboi\_8:

(Start: 6 @4398 has 52 MA's), (8, 4353), (9, 4335), (13, 4266), (20, 4113), (23, 4089), (28, 4014),