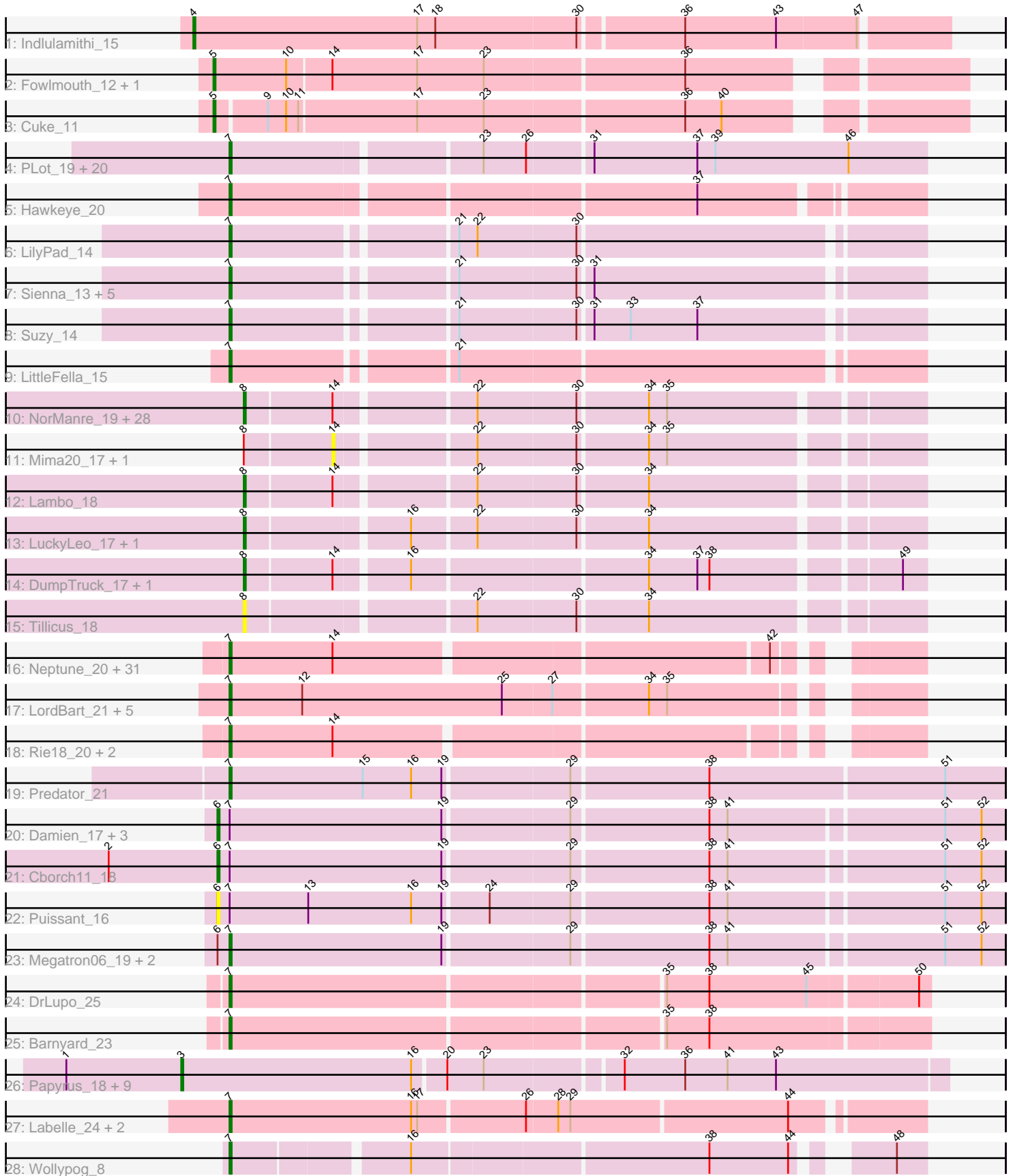


Pham 202755



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 202755 Report

This analysis was run 01/18/25 on database version 583.

Pham number 202755 has 139 members, 16 are drafts.

Phages represented in each track:

- Track 1 : Indlulamithi\_15
- Track 2 : Fowlmouth\_12, MrMiyagi\_12
- Track 3 : Cuke\_11
- Track 4 : PLOT\_19, WaldoWhy\_19, Visconti\_18, Gumball\_17, KandZ\_18, Helpful\_19, Delton\_18, SirHarley\_17, Thoth\_18, Nova\_18, Adjutor\_19, BigMama\_16, Chill\_19, Prager\_18, Penelope2018\_18, Troll4\_18, Erk16\_18, Giuseppe\_18, Mopey\_18, PBI1\_19, Butterscotch\_18
- Track 5 : Hawkeye\_20
- Track 6 : LilyPad\_14
- Track 7 : Sienna\_13, Djokovic\_13, Madi\_13, Terapin\_13, BiteSize\_13, Beyoncage\_13
- Track 8 : Suzy\_14
- Track 9 : LittleFella\_15
- Track 10 : NorManre\_19, Rumi\_17, OtterstedtS21\_18, Fulcrum\_19, Ranch\_18, Alyssamiracle\_17, Gibbin\_19, Lila22\_18, Genamy16\_17, Sampudon\_18, ParvusTarda\_18, Patos\_19, DaviePasture\_18, DoobyDoo\_17, GretelLyn\_18, MoiGyank\_20, Astralis\_16, Sadboi\_18, NovaSharks\_17, Alephlan\_15, Jalebi\_18, Zany\_17, Wojtek\_17, BirthdayBoy\_19, Jamemuya19\_15, Yikes\_19, RazorC\_16, GOATification\_19, Erutan\_18
- Track 11 : Mima20\_17, Avian\_16
- Track 12 : Lambo\_18
- Track 13 : LuckyLeo\_17, Apeppi\_16
- Track 14 : DumpTruck\_17, Xenia2\_15
- Track 15 : Tillicus\_18
- Track 16 : Neptune\_20, SilentWarrior\_19, Krampus\_20, Snakehole\_21, Dauntless\_19, Chivey\_19, Pharpay\_20, Gilda\_20, Anakin\_20, Rachella\_20, Erudite\_19, FreddieHg\_19, Haunter\_20, Aesir\_19, Kate\_20, DannyDe\_19, CoolCookie\_20, Potty\_20, Artiphact\_20, AnnaSerena\_20, Tedro\_20, MortySmith\_18, PhunaPhoke\_20, JDawG\_19, OverHedge\_20, Annapurna\_20, NarutoRun\_20, JingleBells\_19, Hiddenleaf\_19, Poultruss\_19, Cybele\_20, Crestdrop\_19
- Track 17 : LordBart\_21, Ajin\_21, RikSengupta\_21, Kors\_22, TinyMiny\_21, Sparcetus\_21
- Track 18 : Rie18\_20, Hager\_21, Karate\_19
- Track 19 : Predator\_21
- Track 20 : Damien\_17, Phreeze\_17, Beckerton\_17, Konstantine\_22
- Track 21 : Cborch11\_18
- Track 22 : Puissant\_16

- Track 23 : Megatron06\_19, Thumb\_17, Oaker\_17
- Track 24 : DrLupo\_25
- Track 25 : Barnyard\_23
- Track 26 : Papyrus\_18, MontyDev\_18, Nilo\_19, Candle\_18, Weiss13\_18, Riparian\_18, Send513\_18, Yelo\_18, Zenon\_19, Rope\_18
- Track 27 : Labelle\_24, Madrugua\_23, Patience\_25
- Track 28 : Wollypog\_8

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

The start number called the most often in the published annotations is 7, it was called in 76 of the 123 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adjutor\_19, Aesir\_19, Ajin\_21, Anakin\_20, AnnaSerena\_20, Annapurna\_20, Artiphact\_20, Barnyard\_23, Beyoncage\_13, BigMama\_16, BiteSize\_13, Butterscotch\_18, Chill\_19, Chivey\_19, CoolCookie\_20, Crestdrop\_19, Cybele\_20, DannyDe\_19, Dauntless\_19, Delton\_18, Djokovic\_13, DrLupo\_25, Erk16\_18, Erudite\_19, FreddieHg\_19, Gilda\_20, Giuseppe\_18, Gumball\_17, Hager\_21, Haunter\_20, Hawkeye\_20, Helpful\_19, Hiddenleaf\_19, JDawG\_19, JingleBells\_19, KandZ\_18, Karate\_19, Kate\_20, Kors\_22, Krampus\_20, Labelle\_24, LilyPad\_14, LittleFella\_15, LordBart\_21, Madi\_13, Madrugua\_23, Megatron06\_19, Mopey\_18, MortySmith\_18, NarutoRun\_20, Neptune\_20, Nova\_18, Oaker\_17, OverHedge\_20, PB11\_19, PLOT\_19, Patience\_25, Penelope2018\_18, Pharpay\_20, PhunaPhoke\_20, Potty\_20, Poultress\_19, Prager\_18, Predator\_21, Rachella\_20, Rie18\_20, RikSengupta\_21, Sienna\_13, SilentWarrior\_19, SirHarley\_17, Snakehole\_21, Sparcetus\_21, Suzy\_14, Tedro\_20, Terapin\_13, Thoth\_18, Thumb\_17, TinyMiny\_21, Troll4\_18, Visconti\_18, WaldoWhy\_19, Wollypog\_8,

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

- Beckerton\_17, Cborch11\_18, Damien\_17, Konstantine\_22, Phreeze\_17, Puissant\_16,

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

- Alephilan\_15, Alyssamiracle\_17, Apeppi\_16, Astralis\_16, Avian\_16, BirthdayBoy\_19, Candle\_18, Cuke\_11, DaviePasture\_18, DoobyDoo\_17, DumpTruck\_17, Erutan\_18, Fowlmouth\_12, Fulcrum\_19, GOATification\_19, Genamy16\_17, Gibbin\_19, GretelLyn\_18, Indlulamithi\_15, Jalebi\_18, Jamemuya19\_15, Lambo\_18, Lila22\_18, LuckyLeo\_17, Mima20\_17, MoiGyank\_20, MontyDev\_18, MrMiyagi\_12, Nilo\_19, NorManre\_19, NovaSharks\_17, OtterstedtS21\_18, Papyrus\_18, ParvusTarda\_18, Patos\_19, Ranch\_18, RazorC\_16, Riparian\_18, Rope\_18, Rumi\_17, Sadboi\_18, Sampudon\_18, Send513\_18, Tillicus\_18, Weiss13\_18, Wojtek\_17, Xenia2\_15, Yelo\_18, Yikes\_19, Zany\_17, Zenon\_19,

**Summary by start number:**

Start 3:

- Found in 10 of 139 ( 7.2% ) of genes in pham
- Manual Annotations of this start: 9 of 123

- Called 100.0% of time when present
- Phage (with cluster) where this start called: Candle\_18 (R), MontyDev\_18 (R), Nilo\_19 (R), Papyrus\_18 (R), Riparian\_18 (R), Rope\_18 (R), Send513\_18 (R), Weiss13\_18 (R), Yelo\_18 (R), Zenon\_19 (R),

#### Start 4:

- Found in 1 of 139 ( 0.7% ) of genes in pham
- Manual Annotations of this start: 1 of 123
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Indlulamithi\_15 (AC),

#### Start 5:

- Found in 3 of 139 ( 2.2% ) of genes in pham
- Manual Annotations of this start: 3 of 123
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Cuke\_11 (AC), Fowlmouth\_12 (AC), MrMiyagi\_12 (AC),

#### Start 6:

- Found in 9 of 139 ( 6.5% ) of genes in pham
- Manual Annotations of this start: 5 of 123
- Called 66.7% of time when present
- Phage (with cluster) where this start called: Beckerton\_17 (H1), Cborch11\_18 (H1), Damien\_17 (H1), Konstantine\_22 (H1), Phreeze\_17 (H1), Puissant\_16 (H1),

#### Start 7:

- Found in 88 of 139 ( 63.3% ) of genes in pham
- Manual Annotations of this start: 76 of 123
- Called 93.2% of time when present
- Phage (with cluster) where this start called: Adjutor\_19 (D1), Aesir\_19 (EF), Ajin\_21 (EF), Anakin\_20 (EF), AnnaSerena\_20 (EF), Annapurna\_20 (EF), Artiphact\_20 (EF), Barnyard\_23 (H2), Beyoncage\_13 (DG1), BigMama\_16 (D1), BiteSize\_13 (DG1), Butterscotch\_18 (D1), Chill\_19 (D1), Chivey\_19 (EF), CoolCookie\_20 (EF), Crestdrop\_19 (EF), Cybele\_20 (EF), DannyDe\_19 (EF), Dauntless\_19 (EF), Delton\_18 (D1), Djokovic\_13 (DG1), DrLupo\_25 (H2), Erk16\_18 (D1), Erudite\_19 (EF), FreddieHg\_19 (EF), Gilda\_20 (EF), Giuseppe\_18 (D1), Gumball\_17 (D1), Hager\_21 (EF), Haunter\_20 (EF), Hawkeye\_20 (D2), Helpful\_19 (D1), Hiddenleaf\_19 (EF), JDawG\_19 (EF), JingleBells\_19 (EF), KandZ\_18 (D1), Karate\_19 (EF), Kate\_20 (EF), Kors\_22 (EF), Krampus\_20 (EF), Labelle\_24 (U), LilyPad\_14 (DG1), LittleFella\_15 (DG2), LordBart\_21 (EF), Madi\_13 (DG1), Madrugua\_23 (U), Megatron06\_19 (H1), Mopey\_18 (D1), MortySmith\_18 (EF), NarutoRun\_20 (EF), Neptune\_20 (EF), Nova\_18 (D1), Oaker\_17 (H1), OverHedge\_20 (EF), PBI1\_19 (D1), PLOT\_19 (D1), Patience\_25 (U), Penelope2018\_18 (D1), Pharpay\_20 (EF), PhunaPhoke\_20 (EF), Potty\_20 (EF), Poultruss\_19 (EF), Prager\_18 (D1), Predator\_21 (H1), Rachella\_20 (EF), Rie18\_20 (EF), RikSengupta\_21 (EF), Sienna\_13 (DG1), SilentWarrior\_19 (EF), SirHarley\_17 (D1), Snakehole\_21 (EF), Sparcetus\_21 (EF), Suzy\_14 (DG1), Tedro\_20 (EF), Terapin\_13 (DG1), Thoth\_18 (D1), Thumb\_17 (H1), TinyMiny\_21 (EF), Troll4\_18 (D1), Visconti\_18 (D1), WaldoWhy\_19 (D1), Wollypog\_8 (singleton),

#### Start 8:

- Found in 37 of 139 ( 26.6% ) of genes in pham
- Manual Annotations of this start: 29 of 123

- Called 94.6% of time when present
- Phage (with cluster) where this start called: Alephilan\_15 (DV), Alyssamiracle\_17 (DV), Apeppi\_16 (DV), Astralis\_16 (DV), BirthdayBoy\_19 (DV), DaviePasture\_18 (DV), DoobyDoo\_17 (DV), DumpTruck\_17 (DV), Erutan\_18 (DV), Fulcrum\_19 (DV), GOATification\_19 (DV), Genamy16\_17 (DV), Gibbin\_19 (DV), Gretellyn\_18 (DV), Jalebi\_18 (DV), Jamemuya19\_15 (DV), Lambo\_18 (DV), Lila22\_18 (DV), LuckyLeo\_17 (DV), MoiGyank\_20 (DV), NorManre\_19 (DV), NovaSharks\_17 (DV), OtterstedtS21\_18 (DV), ParvusTarda\_18 (DV), Patos\_19 (DV), Ranch\_18 (DV), RazorC\_16 (DV), Rumi\_17 (DV), Sadboi\_18 (DV), Sampudon\_18 (DV), Tillicus\_18 (DV), Wojtek\_17 (DV), Xenia2\_15 (DV), Yikes\_19 (DV), Zany\_17 (DV),

Start 14:

- Found in 71 of 139 ( 51.1% ) of genes in pham
- No Manual Annotations of this start.
- Called 2.8% of time when present
- Phage (with cluster) where this start called: Avian\_16 (DV), Mima20\_17 (DV),

### Summary by clusters:

There are 12 clusters represented in this pham: AC, H1, H2, EF, singleton, DG2, R, U, DV, DG1, D2, D1,

Info for manual annotations of cluster AC:

- Start number 4 was manually annotated 1 time for cluster AC.
- Start number 5 was manually annotated 3 times for cluster AC.

Info for manual annotations of cluster D1:

- Start number 7 was manually annotated 21 times for cluster D1.

Info for manual annotations of cluster D2:

- Start number 7 was manually annotated 1 time for cluster D2.

Info for manual annotations of cluster DG1:

- Start number 7 was manually annotated 8 times for cluster DG1.

Info for manual annotations of cluster DG2:

- Start number 7 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DV:

- Start number 8 was manually annotated 29 times for cluster DV.

Info for manual annotations of cluster EF:

- Start number 7 was manually annotated 35 times for cluster EF.

Info for manual annotations of cluster H1:

- Start number 6 was manually annotated 5 times for cluster H1.
- Start number 7 was manually annotated 4 times for cluster H1.

Info for manual annotations of cluster H2:

- Start number 7 was manually annotated 2 times for cluster H2.

Info for manual annotations of cluster R:

- Start number 3 was manually annotated 9 times for cluster R.

Info for manual annotations of cluster U:

•Start number 7 was manually annotated 3 times for cluster U.

**Gene Information:**

Gene: Adjutor\_19 Start: 12400, Stop: 12732, Start Num: 7

Candidate Starts for Adjutor\_19:

(Start: 7 @12400 has 76 MA's), (23, 12517), (26, 12538), (31, 12568), (37, 12619), (39, 12628), (46, 12694),

Gene: Aesir\_19 Start: 11130, Stop: 11438, Start Num: 7

Candidate Starts for Aesir\_19:

(Start: 7 @11130 has 76 MA's), (14, 11181), (42, 11385),

Gene: Ajin\_21 Start: 11286, Stop: 11603, Start Num: 7

Candidate Starts for Ajin\_21:

(Start: 7 @11286 has 76 MA's), (12, 11322), (25, 11421), (27, 11445), (34, 11490), (35, 11499),

Gene: Alephilan\_15 Start: 12943, Stop: 13254, Start Num: 8

Candidate Starts for Alephilan\_15:

(Start: 8 @12943 has 29 MA's), (14, 12985), (22, 13048), (30, 13096), (34, 13129), (35, 13138),

Gene: Alyssamiracle\_17 Start: 11350, Stop: 11661, Start Num: 8

Candidate Starts for Alyssamiracle\_17:

(Start: 8 @11350 has 29 MA's), (14, 11392), (22, 11455), (30, 11503), (34, 11536), (35, 11545),

Gene: Anakin\_20 Start: 11340, Stop: 11648, Start Num: 7

Candidate Starts for Anakin\_20:

(Start: 7 @11340 has 76 MA's), (14, 11391), (42, 11595),

Gene: AnnaSerena\_20 Start: 11349, Stop: 11657, Start Num: 7

Candidate Starts for AnnaSerena\_20:

(Start: 7 @11349 has 76 MA's), (14, 11400), (42, 11604),

Gene: Annapurna\_20 Start: 10549, Stop: 10857, Start Num: 7

Candidate Starts for Annapurna\_20:

(Start: 7 @10549 has 76 MA's), (14, 10600), (42, 10804),

Gene: Apeppi\_16 Start: 13065, Stop: 13376, Start Num: 8

Candidate Starts for Apeppi\_16:

(Start: 8 @13065 has 29 MA's), (16, 13140), (22, 13170), (30, 13218), (34, 13251),

Gene: Artiphact\_20 Start: 11341, Stop: 11649, Start Num: 7

Candidate Starts for Artiphact\_20:

(Start: 7 @11341 has 76 MA's), (14, 11392), (42, 11596),

Gene: Astralis\_16 Start: 11350, Stop: 11661, Start Num: 8

Candidate Starts for Astralis\_16:

(Start: 8 @11350 has 29 MA's), (14, 11392), (22, 11455), (30, 11503), (34, 11536), (35, 11545),

Gene: Avian\_16 Start: 11392, Stop: 11661, Start Num: 14  
Candidate Starts for Avian\_16:  
(Start: 8 @11350 has 29 MA's), (14, 11392), (22, 11455), (30, 11503), (34, 11536), (35, 11545),

Gene: Barnyard\_23 Start: 13941, Stop: 14273, Start Num: 7  
Candidate Starts for Barnyard\_23:  
(Start: 7 @13941 has 76 MA's), (35, 14148), (38, 14169),

Gene: Beckerton\_17 Start: 12784, Stop: 13161, Start Num: 6  
Candidate Starts for Beckerton\_17:  
(Start: 6 @12784 has 5 MA's), (Start: 7 @12790 has 76 MA's), (19, 12895), (29, 12955), (38, 13021),  
(41, 13030), (51, 13132), (52, 13150),

Gene: Beyoncage\_13 Start: 8817, Stop: 9137, Start Num: 7  
Candidate Starts for Beyoncage\_13:  
(Start: 7 @8817 has 76 MA's), (21, 8919), (30, 8976), (31, 8982),

Gene: BigMama\_16 Start: 12476, Stop: 12808, Start Num: 7  
Candidate Starts for BigMama\_16:  
(Start: 7 @12476 has 76 MA's), (23, 12593), (26, 12614), (31, 12644), (37, 12695), (39, 12704), (46,  
12770),

Gene: BirthdayBoy\_19 Start: 13796, Stop: 14107, Start Num: 8  
Candidate Starts for BirthdayBoy\_19:  
(Start: 8 @13796 has 29 MA's), (14, 13838), (22, 13901), (30, 13949), (34, 13982), (35, 13991),

Gene: BiteSize\_13 Start: 8817, Stop: 9137, Start Num: 7  
Candidate Starts for BiteSize\_13:  
(Start: 7 @8817 has 76 MA's), (21, 8919), (30, 8976), (31, 8982),

Gene: Butterscotch\_18 Start: 12460, Stop: 12792, Start Num: 7  
Candidate Starts for Butterscotch\_18:  
(Start: 7 @12460 has 76 MA's), (23, 12577), (26, 12598), (31, 12628), (37, 12679), (39, 12688), (46,  
12754),

Gene: Candle\_18 Start: 12792, Stop: 13160, Start Num: 3  
Candidate Starts for Candle\_18:  
(1, 12735), (Start: 3 @12792 has 9 MA's), (16, 12906), (20, 12921), (23, 12939), (32, 13002), (36,  
13032), (41, 13053), (43, 13077),

Gene: Cborch11\_18 Start: 12247, Stop: 12624, Start Num: 6  
Candidate Starts for Cborch11\_18:  
(2, 12193), (Start: 6 @12247 has 5 MA's), (Start: 7 @12253 has 76 MA's), (19, 12358), (29, 12418),  
(38, 12484), (41, 12493), (51, 12595), (52, 12613),

Gene: Chill\_19 Start: 12466, Stop: 12798, Start Num: 7  
Candidate Starts for Chill\_19:  
(Start: 7 @12466 has 76 MA's), (23, 12583), (26, 12604), (31, 12634), (37, 12685), (39, 12694), (46,  
12760),

Gene: Chivey\_19 Start: 10542, Stop: 10850, Start Num: 7  
Candidate Starts for Chivey\_19:  
(Start: 7 @10542 has 76 MA's), (14, 10593), (42, 10797),

Gene: CoolCookie\_20 Start: 11347, Stop: 11655, Start Num: 7

Candidate Starts for CoolCookie\_20:

(Start: 7 @11347 has 76 MA's), (14, 11398), (42, 11602),

Gene: Crestdrop\_19 Start: 10416, Stop: 10724, Start Num: 7

Candidate Starts for Crestdrop\_19:

(Start: 7 @10416 has 76 MA's), (14, 10467), (42, 10671),

Gene: Cuke\_11 Start: 7988, Stop: 8332, Start Num: 5

Candidate Starts for Cuke\_11:

(Start: 5 @7988 has 3 MA's), (9, 8012), (10, 8021), (11, 8027), (17, 8084), (23, 8117), (36, 8213), (40, 8231),

Gene: Cybele\_20 Start: 11317, Stop: 11625, Start Num: 7

Candidate Starts for Cybele\_20:

(Start: 7 @11317 has 76 MA's), (14, 11368), (42, 11572),

Gene: Damien\_17 Start: 12246, Stop: 12623, Start Num: 6

Candidate Starts for Damien\_17:

(Start: 6 @12246 has 5 MA's), (Start: 7 @12252 has 76 MA's), (19, 12357), (29, 12417), (38, 12483), (41, 12492), (51, 12594), (52, 12612),

Gene: DannyDe\_19 Start: 10534, Stop: 10842, Start Num: 7

Candidate Starts for DannyDe\_19:

(Start: 7 @10534 has 76 MA's), (14, 10585), (42, 10789),

Gene: Dauntless\_19 Start: 11059, Stop: 11367, Start Num: 7

Candidate Starts for Dauntless\_19:

(Start: 7 @11059 has 76 MA's), (14, 11110), (42, 11314),

Gene: DaviePasture\_18 Start: 13553, Stop: 13864, Start Num: 8

Candidate Starts for DaviePasture\_18:

(Start: 8 @13553 has 29 MA's), (14, 13595), (22, 13658), (30, 13706), (34, 13739), (35, 13748),

Gene: Delton\_18 Start: 12472, Stop: 12804, Start Num: 7

Candidate Starts for Delton\_18:

(Start: 7 @12472 has 76 MA's), (23, 12589), (26, 12610), (31, 12640), (37, 12691), (39, 12700), (46, 12766),

Gene: Djokovic\_13 Start: 8817, Stop: 9137, Start Num: 7

Candidate Starts for Djokovic\_13:

(Start: 7 @8817 has 76 MA's), (21, 8919), (30, 8976), (31, 8982),

Gene: DoobyDoo\_17 Start: 12730, Stop: 13041, Start Num: 8

Candidate Starts for DoobyDoo\_17:

(Start: 8 @12730 has 29 MA's), (14, 12772), (22, 12835), (30, 12883), (34, 12916), (35, 12925),

Gene: DrLupo\_25 Start: 14352, Stop: 14684, Start Num: 7

Candidate Starts for DrLupo\_25:

(Start: 7 @14352 has 76 MA's), (35, 14559), (38, 14580), (45, 14628), (50, 14679),

Gene: DumpTruck\_17 Start: 12984, Stop: 13295, Start Num: 8



Candidate Starts for DumpTruck\_17:

(Start: 8 @12984 has 29 MA's), (14, 13026), (16, 13059), (34, 13170), (37, 13194), (38, 13200), (49, 13284),

Gene: Erk16\_18 Start: 12463, Stop: 12795, Start Num: 7

Candidate Starts for Erk16\_18:

(Start: 7 @12463 has 76 MA's), (23, 12580), (26, 12601), (31, 12631), (37, 12682), (39, 12691), (46, 12757),

Gene: Erudite\_19 Start: 11059, Stop: 11367, Start Num: 7

Candidate Starts for Erudite\_19:

(Start: 7 @11059 has 76 MA's), (14, 11110), (42, 11314),

Gene: Erutan\_18 Start: 13243, Stop: 13554, Start Num: 8

Candidate Starts for Erutan\_18:

(Start: 8 @13243 has 29 MA's), (14, 13285), (22, 13348), (30, 13396), (34, 13429), (35, 13438),

Gene: Fowlmouth\_12 Start: 8156, Stop: 8503, Start Num: 5

Candidate Starts for Fowlmouth\_12:

(Start: 5 @8156 has 3 MA's), (10, 8192), (14, 8213), (17, 8255), (23, 8288), (36, 8384),

Gene: FreddieHg\_19 Start: 10558, Stop: 10866, Start Num: 7

Candidate Starts for FreddieHg\_19:

(Start: 7 @10558 has 76 MA's), (14, 10609), (42, 10813),

Gene: Fulcrum\_19 Start: 13776, Stop: 14087, Start Num: 8

Candidate Starts for Fulcrum\_19:

(Start: 8 @13776 has 29 MA's), (14, 13818), (22, 13881), (30, 13929), (34, 13962), (35, 13971),

Gene: GOATification\_19 Start: 13776, Stop: 14087, Start Num: 8

Candidate Starts for GOATification\_19:

(Start: 8 @13776 has 29 MA's), (14, 13818), (22, 13881), (30, 13929), (34, 13962), (35, 13971),

Gene: Genamy16\_17 Start: 11350, Stop: 11661, Start Num: 8

Candidate Starts for Genamy16\_17:

(Start: 8 @11350 has 29 MA's), (14, 11392), (22, 11455), (30, 11503), (34, 11536), (35, 11545),

Gene: Gibbin\_19 Start: 13836, Stop: 14147, Start Num: 8

Candidate Starts for Gibbin\_19:

(Start: 8 @13836 has 29 MA's), (14, 13878), (22, 13941), (30, 13989), (34, 14022), (35, 14031),

Gene: Gilda\_20 Start: 11341, Stop: 11649, Start Num: 7

Candidate Starts for Gilda\_20:

(Start: 7 @11341 has 76 MA's), (14, 11392), (42, 11596),

Gene: Giuseppe\_18 Start: 12452, Stop: 12784, Start Num: 7

Candidate Starts for Giuseppe\_18:

(Start: 7 @12452 has 76 MA's), (23, 12569), (26, 12590), (31, 12620), (37, 12671), (39, 12680), (46, 12746),

Gene: Gretellyn\_18 Start: 14110, Stop: 14421, Start Num: 8

Candidate Starts for Gretellyn\_18:

(Start: 8 @14110 has 29 MA's), (14, 14152), (22, 14215), (30, 14263), (34, 14296), (35, 14305),

Gene: Gumball\_17 Start: 12410, Stop: 12742, Start Num: 7  
Candidate Starts for Gumball\_17:  
(Start: 7 @12410 has 76 MA's), (23, 12527), (26, 12548), (31, 12578), (37, 12629), (39, 12638), (46, 12704),

Gene: Hager\_21 Start: 10912, Stop: 11220, Start Num: 7  
Candidate Starts for Hager\_21:  
(Start: 7 @10912 has 76 MA's), (14, 10963),

Gene: Haunter\_20 Start: 10754, Stop: 11062, Start Num: 7  
Candidate Starts for Haunter\_20:  
(Start: 7 @10754 has 76 MA's), (14, 10805), (42, 11009),

Gene: Hawkeye\_20 Start: 12347, Stop: 12667, Start Num: 7  
Candidate Starts for Hawkeye\_20:  
(Start: 7 @12347 has 76 MA's), (37, 12566),

Gene: Helpful\_19 Start: 12460, Stop: 12792, Start Num: 7  
Candidate Starts for Helpful\_19:  
(Start: 7 @12460 has 76 MA's), (23, 12577), (26, 12598), (31, 12628), (37, 12679), (39, 12688), (46, 12754),

Gene: Hiddenleaf\_19 Start: 10542, Stop: 10850, Start Num: 7  
Candidate Starts for Hiddenleaf\_19:  
(Start: 7 @10542 has 76 MA's), (14, 10593), (42, 10797),

Gene: Indlulamithi\_15 Start: 10237, Stop: 10599, Start Num: 4  
Candidate Starts for Indlulamithi\_15:  
(Start: 4 @10237 has 1 MA's), (17, 10348), (18, 10357), (30, 10426), (36, 10474), (43, 10519), (47, 10558),

Gene: JDawG\_19 Start: 11124, Stop: 11432, Start Num: 7  
Candidate Starts for JDawG\_19:  
(Start: 7 @11124 has 76 MA's), (14, 11175), (42, 11379),

Gene: Jalebi\_18 Start: 14286, Stop: 14597, Start Num: 8  
Candidate Starts for Jalebi\_18:  
(Start: 8 @14286 has 29 MA's), (14, 14328), (22, 14391), (30, 14439), (34, 14472), (35, 14481),

Gene: Jamemuya19\_15 Start: 11350, Stop: 11661, Start Num: 8  
Candidate Starts for Jamemuya19\_15:  
(Start: 8 @11350 has 29 MA's), (14, 11392), (22, 11455), (30, 11503), (34, 11536), (35, 11545),

Gene: JingleBells\_19 Start: 10623, Stop: 10931, Start Num: 7  
Candidate Starts for JingleBells\_19:  
(Start: 7 @10623 has 76 MA's), (14, 10674), (42, 10878),

Gene: KandZ\_18 Start: 12560, Stop: 12892, Start Num: 7  
Candidate Starts for KandZ\_18:  
(Start: 7 @12560 has 76 MA's), (23, 12677), (26, 12698), (31, 12728), (37, 12779), (39, 12788), (46, 12854),

Gene: Karate\_19 Start: 10762, Stop: 11070, Start Num: 7

Candidate Starts for Karate\_19:

(Start: 7 @10762 has 76 MA's), (14, 10813),

Gene: Kate\_20 Start: 11349, Stop: 11657, Start Num: 7

Candidate Starts for Kate\_20:

(Start: 7 @11349 has 76 MA's), (14, 11400), (42, 11604),

Gene: Konstantine\_22 Start: 13448, Stop: 13825, Start Num: 6

Candidate Starts for Konstantine\_22:

(Start: 6 @13448 has 5 MA's), (Start: 7 @13454 has 76 MA's), (19, 13559), (29, 13619), (38, 13685), (41, 13694), (51, 13796), (52, 13814),

Gene: Kors\_22 Start: 11332, Stop: 11649, Start Num: 7

Candidate Starts for Kors\_22:

(Start: 7 @11332 has 76 MA's), (12, 11368), (25, 11467), (27, 11491), (34, 11536), (35, 11545),

Gene: Krampus\_20 Start: 11347, Stop: 11655, Start Num: 7

Candidate Starts for Krampus\_20:

(Start: 7 @11347 has 76 MA's), (14, 11398), (42, 11602),

Gene: Labelle\_24 Start: 15501, Stop: 15830, Start Num: 7

Candidate Starts for Labelle\_24:

(Start: 7 @15501 has 76 MA's), (16, 15591), (17, 15594), (26, 15645), (28, 15660), (29, 15666), (44, 15771),

Gene: Lambo\_18 Start: 13780, Stop: 14091, Start Num: 8

Candidate Starts for Lambo\_18:

(Start: 8 @13780 has 29 MA's), (14, 13822), (22, 13885), (30, 13933), (34, 13966),

Gene: Lila22\_18 Start: 13734, Stop: 14045, Start Num: 8

Candidate Starts for Lila22\_18:

(Start: 8 @13734 has 29 MA's), (14, 13776), (22, 13839), (30, 13887), (34, 13920), (35, 13929),

Gene: LilyPad\_14 Start: 9536, Stop: 9856, Start Num: 7

Candidate Starts for LilyPad\_14:

(Start: 7 @9536 has 76 MA's), (21, 9638), (22, 9647), (30, 9695),

Gene: LittleFella\_15 Start: 11437, Stop: 11757, Start Num: 7

Candidate Starts for LittleFella\_15:

(Start: 7 @11437 has 76 MA's), (21, 11539),

Gene: LordBart\_21 Start: 11248, Stop: 11565, Start Num: 7

Candidate Starts for LordBart\_21:

(Start: 7 @11248 has 76 MA's), (12, 11284), (25, 11383), (27, 11407), (34, 11452), (35, 11461),

Gene: LuckyLeo\_17 Start: 13065, Stop: 13376, Start Num: 8

Candidate Starts for LuckyLeo\_17:

(Start: 8 @13065 has 29 MA's), (16, 13140), (22, 13170), (30, 13218), (34, 13251),

Gene: Madi\_13 Start: 8817, Stop: 9137, Start Num: 7

Candidate Starts for Madi\_13:

(Start: 7 @8817 has 76 MA's), (21, 8919), (30, 8976), (31, 8982),

Gene: Madruga\_23 Start: 15170, Stop: 15499, Start Num: 7

Candidate Starts for Madruga\_23:

(Start: 7 @15170 has 76 MA's), (16, 15260), (17, 15263), (26, 15314), (28, 15329), (29, 15335), (44, 15440),

Gene: Megatron06\_19 Start: 12787, Stop: 13158, Start Num: 7

Candidate Starts for Megatron06\_19:

(Start: 6 @12781 has 5 MA's), (Start: 7 @12787 has 76 MA's), (19, 12892), (29, 12952), (38, 13018), (41, 13027), (51, 13129), (52, 13147),

Gene: Mima20\_17 Start: 13505, Stop: 13774, Start Num: 14

Candidate Starts for Mima20\_17:

(Start: 8 @13463 has 29 MA's), (14, 13505), (22, 13568), (30, 13616), (34, 13649), (35, 13658),

Gene: MoiGyank\_20 Start: 14147, Stop: 14458, Start Num: 8

Candidate Starts for MoiGyank\_20:

(Start: 8 @14147 has 29 MA's), (14, 14189), (22, 14252), (30, 14300), (34, 14333), (35, 14342),

Gene: MontyDev\_18 Start: 12450, Stop: 12818, Start Num: 3

Candidate Starts for MontyDev\_18:

(1, 12393), (Start: 3 @12450 has 9 MA's), (16, 12564), (20, 12579), (23, 12597), (32, 12660), (36, 12690), (41, 12711), (43, 12735),

Gene: Mopey\_18 Start: 12460, Stop: 12792, Start Num: 7

Candidate Starts for Mopey\_18:

(Start: 7 @12460 has 76 MA's), (23, 12577), (26, 12598), (31, 12628), (37, 12679), (39, 12688), (46, 12754),

Gene: MortySmith\_18 Start: 10521, Stop: 10829, Start Num: 7

Candidate Starts for MortySmith\_18:

(Start: 7 @10521 has 76 MA's), (14, 10572), (42, 10776),

Gene: MrMiyagi\_12 Start: 8156, Stop: 8503, Start Num: 5

Candidate Starts for MrMiyagi\_12:

(Start: 5 @8156 has 3 MA's), (10, 8192), (14, 8213), (17, 8255), (23, 8288), (36, 8384),

Gene: NarutoRun\_20 Start: 11340, Stop: 11648, Start Num: 7

Candidate Starts for NarutoRun\_20:

(Start: 7 @11340 has 76 MA's), (14, 11391), (42, 11595),

Gene: Neptune\_20 Start: 11317, Stop: 11625, Start Num: 7

Candidate Starts for Neptune\_20:

(Start: 7 @11317 has 76 MA's), (14, 11368), (42, 11572),

Gene: Nilo\_19 Start: 12789, Stop: 13157, Start Num: 3

Candidate Starts for Nilo\_19:

(1, 12732), (Start: 3 @12789 has 9 MA's), (16, 12903), (20, 12918), (23, 12936), (32, 12999), (36, 13029), (41, 13050), (43, 13074),

Gene: NorManre\_19 Start: 13342, Stop: 13653, Start Num: 8

Candidate Starts for NorManre\_19:

(Start: 8 @13342 has 29 MA's), (14, 13384), (22, 13447), (30, 13495), (34, 13528), (35, 13537),

Gene: Nova\_18 Start: 12887, Stop: 13219, Start Num: 7

Candidate Starts for Nova\_18:

(Start: 7 @12887 has 76 MA's), (23, 13004), (26, 13025), (31, 13055), (37, 13106), (39, 13115), (46, 13181),

Gene: NovaSharks\_17 Start: 11350, Stop: 11661, Start Num: 8

Candidate Starts for NovaSharks\_17:

(Start: 8 @11350 has 29 MA's), (14, 11392), (22, 11455), (30, 11503), (34, 11536), (35, 11545),

Gene: Oaker\_17 Start: 12511, Stop: 12882, Start Num: 7

Candidate Starts for Oaker\_17:

(Start: 6 @12505 has 5 MA's), (Start: 7 @12511 has 76 MA's), (19, 12616), (29, 12676), (38, 12742), (41, 12751), (51, 12853), (52, 12871),

Gene: OtterstedtS21\_18 Start: 13432, Stop: 13743, Start Num: 8

Candidate Starts for OtterstedtS21\_18:

(Start: 8 @13432 has 29 MA's), (14, 13474), (22, 13537), (30, 13585), (34, 13618), (35, 13627),

Gene: OverHedge\_20 Start: 11314, Stop: 11622, Start Num: 7

Candidate Starts for OverHedge\_20:

(Start: 7 @11314 has 76 MA's), (14, 11365), (42, 11569),

Gene: PBI1\_19 Start: 12391, Stop: 12723, Start Num: 7

Candidate Starts for PBI1\_19:

(Start: 7 @12391 has 76 MA's), (23, 12508), (26, 12529), (31, 12559), (37, 12610), (39, 12619), (46, 12685),

Gene: PLOT\_19 Start: 12463, Stop: 12795, Start Num: 7

Candidate Starts for PLOT\_19:

(Start: 7 @12463 has 76 MA's), (23, 12580), (26, 12601), (31, 12631), (37, 12682), (39, 12691), (46, 12757),

Gene: Papyrus\_18 Start: 12451, Stop: 12819, Start Num: 3

Candidate Starts for Papyrus\_18:

(1, 12394), (Start: 3 @12451 has 9 MA's), (16, 12565), (20, 12580), (23, 12598), (32, 12661), (36, 12691), (41, 12712), (43, 12736),

Gene: ParvusTarda\_18 Start: 12914, Stop: 13225, Start Num: 8

Candidate Starts for ParvusTarda\_18:

(Start: 8 @12914 has 29 MA's), (14, 12956), (22, 13019), (30, 13067), (34, 13100), (35, 13109),

Gene: Patience\_25 Start: 16060, Stop: 16389, Start Num: 7

Candidate Starts for Patience\_25:

(Start: 7 @16060 has 76 MA's), (16, 16150), (17, 16153), (26, 16204), (28, 16219), (29, 16225), (44, 16330),

Gene: Patos\_19 Start: 13342, Stop: 13653, Start Num: 8

Candidate Starts for Patos\_19:

(Start: 8 @13342 has 29 MA's), (14, 13384), (22, 13447), (30, 13495), (34, 13528), (35, 13537),

Gene: Penelope2018\_18 Start: 12460, Stop: 12792, Start Num: 7

Candidate Starts for Penelope2018\_18:

(Start: 7 @12460 has 76 MA's), (23, 12577), (26, 12598), (31, 12628), (37, 12679), (39, 12688), (46, 12754),

Gene: Pharpay\_20 Start: 11362, Stop: 11670, Start Num: 7  
Candidate Starts for Pharpay\_20:  
(Start: 7 @11362 has 76 MA's), (14, 11413), (42, 11617),

Gene: Phreeze\_17 Start: 12246, Stop: 12623, Start Num: 6  
Candidate Starts for Phreeze\_17:  
(Start: 6 @12246 has 5 MA's), (Start: 7 @12252 has 76 MA's), (19, 12357), (29, 12417), (38, 12483), (41, 12492), (51, 12594), (52, 12612),

Gene: PhunaPhoke\_20 Start: 11335, Stop: 11643, Start Num: 7  
Candidate Starts for PhunaPhoke\_20:  
(Start: 7 @11335 has 76 MA's), (14, 11386), (42, 11590),

Gene: Potty\_20 Start: 11340, Stop: 11648, Start Num: 7  
Candidate Starts for Potty\_20:  
(Start: 7 @11340 has 76 MA's), (14, 11391), (42, 11595),

Gene: Poultruss\_19 Start: 11113, Stop: 11421, Start Num: 7  
Candidate Starts for Poultruss\_19:  
(Start: 7 @11113 has 76 MA's), (14, 11164), (42, 11368),

Gene: Prager\_18 Start: 12472, Stop: 12804, Start Num: 7  
Candidate Starts for Prager\_18:  
(Start: 7 @12472 has 76 MA's), (23, 12589), (26, 12610), (31, 12640), (37, 12691), (39, 12700), (46, 12766),

Gene: Predator\_21 Start: 13774, Stop: 14148, Start Num: 7  
Candidate Starts for Predator\_21:  
(Start: 7 @13774 has 76 MA's), (15, 13840), (16, 13864), (19, 13879), (29, 13939), (38, 14005), (51, 14119),

Gene: Puissant\_16 Start: 12702, Stop: 13079, Start Num: 6  
Candidate Starts for Puissant\_16:  
(Start: 6 @12702 has 5 MA's), (Start: 7 @12708 has 76 MA's), (13, 12747), (16, 12798), (19, 12813), (24, 12834), (29, 12873), (38, 12939), (41, 12948), (51, 13050), (52, 13068),

Gene: Rachella\_20 Start: 11343, Stop: 11651, Start Num: 7  
Candidate Starts for Rachella\_20:  
(Start: 7 @11343 has 76 MA's), (14, 11394), (42, 11598),

Gene: Ranch\_18 Start: 12280, Stop: 12591, Start Num: 8  
Candidate Starts for Ranch\_18:  
(Start: 8 @12280 has 29 MA's), (14, 12322), (22, 12385), (30, 12433), (34, 12466), (35, 12475),

Gene: RazorC\_16 Start: 11350, Stop: 11661, Start Num: 8  
Candidate Starts for RazorC\_16:  
(Start: 8 @11350 has 29 MA's), (14, 11392), (22, 11455), (30, 11503), (34, 11536), (35, 11545),

Gene: Rie18\_20 Start: 10694, Stop: 11002, Start Num: 7  
Candidate Starts for Rie18\_20:

(Start: 7 @10694 has 76 MA's), (14, 10745),

Gene: RikSengupta\_21 Start: 11369, Stop: 11686, Start Num: 7

Candidate Starts for RikSengupta\_21:

(Start: 7 @11369 has 76 MA's), (12, 11405), (25, 11504), (27, 11528), (34, 11573), (35, 11582),

Gene: Riparian\_18 Start: 12250, Stop: 12618, Start Num: 3

Candidate Starts for Riparian\_18:

(1, 12193), (Start: 3 @12250 has 9 MA's), (16, 12364), (20, 12379), (23, 12397), (32, 12460), (36, 12490), (41, 12511), (43, 12535),

Gene: Rope\_18 Start: 12442, Stop: 12810, Start Num: 3

Candidate Starts for Rope\_18:

(1, 12385), (Start: 3 @12442 has 9 MA's), (16, 12556), (20, 12571), (23, 12589), (32, 12652), (36, 12682), (41, 12703), (43, 12727),

Gene: Rumi\_17 Start: 11350, Stop: 11661, Start Num: 8

Candidate Starts for Rumi\_17:

(Start: 8 @11350 has 29 MA's), (14, 11392), (22, 11455), (30, 11503), (34, 11536), (35, 11545),

Gene: Sadboi\_18 Start: 14110, Stop: 14421, Start Num: 8

Candidate Starts for Sadboi\_18:

(Start: 8 @14110 has 29 MA's), (14, 14152), (22, 14215), (30, 14263), (34, 14296), (35, 14305),

Gene: Sampudon\_18 Start: 14286, Stop: 14597, Start Num: 8

Candidate Starts for Sampudon\_18:

(Start: 8 @14286 has 29 MA's), (14, 14328), (22, 14391), (30, 14439), (34, 14472), (35, 14481),

Gene: Send513\_18 Start: 12792, Stop: 13160, Start Num: 3

Candidate Starts for Send513\_18:

(1, 12735), (Start: 3 @12792 has 9 MA's), (16, 12906), (20, 12921), (23, 12939), (32, 13002), (36, 13032), (41, 13053), (43, 13077),

Gene: Sienna\_13 Start: 8817, Stop: 9137, Start Num: 7

Candidate Starts for Sienna\_13:

(Start: 7 @8817 has 76 MA's), (21, 8919), (30, 8976), (31, 8982),

Gene: SilentWarrior\_19 Start: 10550, Stop: 10858, Start Num: 7

Candidate Starts for SilentWarrior\_19:

(Start: 7 @10550 has 76 MA's), (14, 10601), (42, 10805),

Gene: SirHarley\_17 Start: 12392, Stop: 12724, Start Num: 7

Candidate Starts for SirHarley\_17:

(Start: 7 @12392 has 76 MA's), (23, 12509), (26, 12530), (31, 12560), (37, 12611), (39, 12620), (46, 12686),

Gene: Snakehole\_21 Start: 10639, Stop: 10947, Start Num: 7

Candidate Starts for Snakehole\_21:

(Start: 7 @10639 has 76 MA's), (14, 10690), (42, 10894),

Gene: Sparcetus\_21 Start: 11248, Stop: 11565, Start Num: 7

Candidate Starts for Sparcetus\_21:

(Start: 7 @11248 has 76 MA's), (12, 11284), (25, 11383), (27, 11407), (34, 11452), (35, 11461),

Gene: Suzy\_14 Start: 10045, Stop: 10365, Start Num: 7  
Candidate Starts for Suzy\_14:  
(Start: 7 @10045 has 76 MA's), (21, 10147), (30, 10204), (31, 10210), (33, 10228), (37, 10261),

Gene: Tedro\_20 Start: 10813, Stop: 11121, Start Num: 7  
Candidate Starts for Tedro\_20:  
(Start: 7 @10813 has 76 MA's), (14, 10864), (42, 11068),

Gene: Terapin\_13 Start: 8817, Stop: 9137, Start Num: 7  
Candidate Starts for Terapin\_13:  
(Start: 7 @8817 has 76 MA's), (21, 8919), (30, 8976), (31, 8982),

Gene: Thoth\_18 Start: 12457, Stop: 12789, Start Num: 7  
Candidate Starts for Thoth\_18:  
(Start: 7 @12457 has 76 MA's), (23, 12574), (26, 12595), (31, 12625), (37, 12676), (39, 12685), (46, 12751),

Gene: Thumb\_17 Start: 12253, Stop: 12624, Start Num: 7  
Candidate Starts for Thumb\_17:  
(Start: 6 @12247 has 5 MA's), (Start: 7 @12253 has 76 MA's), (19, 12358), (29, 12418), (38, 12484), (41, 12493), (51, 12595), (52, 12613),

Gene: Tillicus\_18 Start: 12659, Stop: 12970, Start Num: 8  
Candidate Starts for Tillicus\_18:  
(Start: 8 @12659 has 29 MA's), (22, 12764), (30, 12812), (34, 12845),

Gene: TinyMiny\_21 Start: 11267, Stop: 11584, Start Num: 7  
Candidate Starts for TinyMiny\_21:  
(Start: 7 @11267 has 76 MA's), (12, 11303), (25, 11402), (27, 11426), (34, 11471), (35, 11480),

Gene: Troll4\_18 Start: 12461, Stop: 12793, Start Num: 7  
Candidate Starts for Troll4\_18:  
(Start: 7 @12461 has 76 MA's), (23, 12578), (26, 12599), (31, 12629), (37, 12680), (39, 12689), (46, 12755),

Gene: Visconti\_18 Start: 12470, Stop: 12802, Start Num: 7  
Candidate Starts for Visconti\_18:  
(Start: 7 @12470 has 76 MA's), (23, 12587), (26, 12608), (31, 12638), (37, 12689), (39, 12698), (46, 12764),

Gene: WaldoWhy\_19 Start: 12466, Stop: 12798, Start Num: 7  
Candidate Starts for WaldoWhy\_19:  
(Start: 7 @12466 has 76 MA's), (23, 12583), (26, 12604), (31, 12634), (37, 12685), (39, 12694), (46, 12760),

Gene: Weiss13\_18 Start: 12482, Stop: 12850, Start Num: 3  
Candidate Starts for Weiss13\_18:  
(1, 12425), (Start: 3 @12482 has 9 MA's), (16, 12596), (20, 12611), (23, 12629), (32, 12692), (36, 12722), (41, 12743), (43, 12767),

Gene: Wojtek\_17 Start: 12987, Stop: 13298, Start Num: 8  
Candidate Starts for Wojtek\_17:



(Start: 8 @12987 has 29 MA's), (14, 13029), (22, 13092), (30, 13140), (34, 13173), (35, 13182),

Gene: Wollypog\_8 Start: 7934, Stop: 8242, Start Num: 7

Candidate Starts for Wollypog\_8:

(Start: 7 @7934 has 76 MA's), (16, 8015), (38, 8156), (44, 8195), (48, 8228),

Gene: Xenia2\_15 Start: 13026, Stop: 13337, Start Num: 8

Candidate Starts for Xenia2\_15:

(Start: 8 @13026 has 29 MA's), (14, 13068), (16, 13101), (34, 13212), (37, 13236), (38, 13242), (49, 13326),

Gene: Yelo\_18 Start: 12792, Stop: 13160, Start Num: 3

Candidate Starts for Yelo\_18:

(1, 12735), (Start: 3 @12792 has 9 MA's), (16, 12906), (20, 12921), (23, 12939), (32, 13002), (36, 13032), (41, 13053), (43, 13077),

Gene: Yikes\_19 Start: 14371, Stop: 14682, Start Num: 8

Candidate Starts for Yikes\_19:

(Start: 8 @14371 has 29 MA's), (14, 14413), (22, 14476), (30, 14524), (34, 14557), (35, 14566),

Gene: Zany\_17 Start: 13500, Stop: 13811, Start Num: 8

Candidate Starts for Zany\_17:

(Start: 8 @13500 has 29 MA's), (14, 13542), (22, 13605), (30, 13653), (34, 13686), (35, 13695),

Gene: Zenon\_19 Start: 12794, Stop: 13162, Start Num: 3

Candidate Starts for Zenon\_19:

(1, 12737), (Start: 3 @12794 has 9 MA's), (16, 12908), (20, 12923), (23, 12941), (32, 13004), (36, 13034), (41, 13055), (43, 13079),