

Pham 311586



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 311586 Report

This analysis was run 06/27/26 on database version 652.

Pham number 311586 has 65 members, 6 are drafts.

Phages represented in each track:

- Track 1 : Lton\_3
- Track 2 : Pepperoni\_3
- Track 3 : Faith5x5\_3
- Track 4 : Moosehead\_3
- Track 5 : OneDirection\_3
- Track 6 : DonkeyMan\_3, Jojo24\_3, Tarzan\_3, Hibiscus\_3
- Track 7 : DearBasketball\_3, Santhid\_3
- Track 8 : Heinz\_3
- Track 9 : Reyja\_4, DinoNuggs\_4
- Track 10 : Xeno\_3, Silvy\_3, Cubone\_2, EGUunicorn\_3
- Track 11 : Rubeelu\_3
- Track 12 : Fulbright\_3, Bosection6\_3, Aggie\_3, Parmesanjohn\_3, Charlie\_3, Andies\_3, Xerxes\_3, Schnauzer\_3, Smurph\_3, Duplicity\_3, Gex\_3, Melville\_3, Pipsqueaks\_3, Chewbacca\_3, Carcharodon\_3, Journey\_3, Philonius\_3, Tapioca\_3, Phloss\_3, Magsby\_3, Silvafighter\_3, Tortoise12\_3
- Track 13 : Snekmaggedon\_3, PhancyPhin\_3, Rebel\_3, SpongeBob\_3, Nenae\_3, Jamie19\_3, Hanako\_3, Spinach\_3, Phrann\_3, Raymond7\_3, ShrimpFriedEgg\_3, BabeRuth\_3, Redi\_3, Shweta\_3, Panchino\_3
- Track 14 : Tessdabest\_2, Scitech\_3
- Track 15 : Kevin1\_3, MichelleMyBell\_3, Butters\_3
- Track 16 : SkinnyPete\_3, Impisi\_3
- Track 17 : Purgamenstris\_3
- Track 18 : Gudmit\_4

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

The start number called the most often in the published annotations is 5, it was called in 40 of the 59 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aggie\_3, Andies\_3, BabeRuth\_3, Bosection6\_3, Butters\_3, Carcharodon\_3, Charlie\_3, Chewbacca\_3, Duplicity\_3, Fulbright\_3, Gex\_3, Hanako\_3, Jamie19\_3, Journey\_3, Kevin1\_3, Magsby\_3, Melville\_3, MichelleMyBell\_3, Nenae\_3, Panchino\_3, Parmesanjohn\_3, PhancyPhin\_3, Philonius\_3, Phloss\_3, Phrann\_3,

Pipsqueaks\_3, Raymond7\_3, Rebel\_3, Redi\_3, Schnauzer\_3, ShrimpFriedEgg\_3, Shweta\_3, Silvafighter\_3, Smurph\_3, Snekmaggedon\_3, Spinach\_3, SpongeBob\_3, Tapioca\_3, Tortoise12\_3, Xerxes\_3,

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

- Cubone\_2, EGUunicorn\_3, Impisi\_3, Purgamenstris\_3, Rubeelu\_3, Scitech\_3, Silvy\_3, SkinnyPete\_3, Tessdabest\_2, Xeno\_3,

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

- DearBasketball\_3, DinoNuggs\_4, DonkeyMan\_3, Faith5x5\_3, Gudmit\_4, Heinz\_3, Hibiscus\_3, Jojo24\_3, Lton\_3, Moosehead\_3, OneDirection\_3, Pepperoni\_3, Reyja\_4, Santhid\_3, Tarzan\_3,

### Summary by start number:

Start 2:

- Found in 1 of 65 ( 1.5% ) of genes in pham
- Manual Annotations of this start: 1 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gudmit\_4 (singleton),

Start 3:

- Found in 9 of 65 ( 13.8% ) of genes in pham
- Manual Annotations of this start: 7 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DearBasketball\_3 (DY), DinoNuggs\_4 (DY), DonkeyMan\_3 (DY), Heinz\_3 (DY), Hibiscus\_3 (DY), Jojo24\_3 (DY), Reyja\_4 (DY), Santhid\_3 (DY), Tarzan\_3 (DY),

Start 5:

- Found in 50 of 65 ( 76.9% ) of genes in pham
- Manual Annotations of this start: 40 of 59
- Called 80.0% of time when present
- Phage (with cluster) where this start called: Aggie\_3 (N), Andies\_3 (N), BabeRuth\_3 (N), Bosection6\_3 (N), Butters\_3 (N), Carcharodon\_3 (N), Charlie\_3 (N), Chewbacca\_3 (N), Duplicity\_3 (N), Fulbright\_3 (N), Gex\_3 (N), Hanako\_3 (N), Jamie19\_3 (N), Journey\_3 (N), Kevin1\_3 (N), Magsby\_3 (N), Melville\_3 (N), MichelleMyBell\_3 (N), Nenae\_3 (N), Panchino\_3 (N), Parmesanjohn\_3 (N), PhancyPhin\_3 (N), Philonius\_3 (N), Phloss\_3 (N), Phrann\_3 (N), Pipsqueaks\_3 (N), Raymond7\_3 (N), Rebel\_3 (N), Redi\_3 (N), Schnauzer\_3 (N), ShrimpFriedEgg\_3 (N), Shweta\_3 (N), Silvafighter\_3 (N), Smurph\_3 (N), Snekmaggedon\_3 (N), Spinach\_3 (N), SpongeBob\_3 (N), Tapioca\_3 (N), Tortoise12\_3 (N), Xerxes\_3 (N),

Start 6:

- Found in 5 of 65 ( 7.7% ) of genes in pham
- Manual Annotations of this start: 5 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Faith5x5\_3 (CZ6), Lton\_3 (CZ), Moosehead\_3 (CZ6), OneDirection\_3 (CZ6), Pepperoni\_3 (CZ),

Start 7:

- Found in 61 of 65 ( 93.8% ) of genes in pham
- Manual Annotations of this start: 1 of 59

- Called 6.6% of time when present
- Phage (with cluster) where this start called: Impisi\_3 (N), Scitech\_3 (N), SkinnyPete\_3 (N), Tessdabest\_2 (N),

Start 8:

- Found in 36 of 65 ( 55.4% ) of genes in pham
- Manual Annotations of this start: 3 of 59
- Called 11.1% of time when present
- Phage (with cluster) where this start called: Cubone\_2 (N), EGUnicorn\_3 (N), Silvy\_3 (N), Xeno\_3 (N),

Start 10:

- Found in 50 of 65 ( 76.9% ) of genes in pham
- Manual Annotations of this start: 2 of 59
- Called 4.0% of time when present
- Phage (with cluster) where this start called: Purgamenstris\_3 (N), Rubeelu\_3 (N),

### **Summary by clusters:**

There are 5 clusters represented in this pham: CZ, singleton, DY, CZ6, N,

Info for manual annotations of cluster CZ:

- Start number 6 was manually annotated 2 times for cluster CZ.

Info for manual annotations of cluster CZ6:

- Start number 6 was manually annotated 3 times for cluster CZ6.

Info for manual annotations of cluster DY:

- Start number 3 was manually annotated 7 times for cluster DY.

Info for manual annotations of cluster N:

- Start number 5 was manually annotated 40 times for cluster N.
- Start number 7 was manually annotated 1 time for cluster N.
- Start number 8 was manually annotated 3 times for cluster N.
- Start number 10 was manually annotated 2 times for cluster N.

### **Gene Information:**

Gene: Aggie\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Aggie\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Andies\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Andies\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: BabeRuth\_3 Start: 2037, Stop: 2246, Start Num: 5

Candidate Starts for BabeRuth\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: Bosection6\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Bosection6\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Butters\_3 Start: 2023, Stop: 2235, Start Num: 5

Candidate Starts for Butters\_3:

(Start: 5 @2023 has 40 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (14, 2104), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Carcharodon\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Carcharodon\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Charlie\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Charlie\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Chewbacca\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Chewbacca\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Cubone\_2 Start: 2062, Stop: 2235, Start Num: 8

Candidate Starts for Cubone\_2:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: DearBasketball\_3 Start: 2115, Stop: 2354, Start Num: 3

Candidate Starts for DearBasketball\_3:

(Start: 3 @2115 has 7 MA's), (Start: 7 @2148 has 1 MA's), (14, 2202), (16, 2232), (22, 2292), (23, 2295), (26, 2325),

Gene: DinoNuggs\_4 Start: 2231, Stop: 2467, Start Num: 3

Candidate Starts for DinoNuggs\_4:

(Start: 3 @2231 has 7 MA's), (Start: 7 @2264 has 1 MA's), (Start: 8 @2276 has 3 MA's), (14, 2318), (16, 2348), (23, 2411), (25, 2435), (27, 2462),

Gene: DonkeyMan\_3 Start: 2115, Stop: 2354, Start Num: 3

Candidate Starts for DonkeyMan\_3:

(Start: 3 @2115 has 7 MA's), (Start: 7 @2148 has 1 MA's), (14, 2202), (16, 2232), (21, 2289), (22, 2292), (23, 2295), (26, 2325),

Gene: Duplicity\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Duplicity\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: EGUnicorn\_3 Start: 2062, Stop: 2235, Start Num: 8

Candidate Starts for EGUnicorn\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Faith5x5\_3 Start: 1948, Stop: 2166, Start Num: 6

Candidate Starts for Faith5x5\_3:

(Start: 6 @1948 has 5 MA's), (Start: 7 @1969 has 1 MA's), (Start: 8 @1981 has 3 MA's), (9, 1984), (11, 2011), (13, 2020), (14, 2023), (15, 2050), (18, 2071), (19, 2077), (20, 2095),

Gene: Fulbright\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Fulbright\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Gex\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Gex\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Gudmit\_4 Start: 2701, Stop: 2934, Start Num: 2

Candidate Starts for Gudmit\_4:

(1, 2524), (Start: 2 @2701 has 1 MA's), (4, 2716), (Start: 7 @2740 has 1 MA's), (Start: 8 @2752 has 3 MA's), (13, 2791), (14, 2794), (16, 2824), (20, 2863), (21, 2881),

Gene: Hanako\_3 Start: 2037, Stop: 2246, Start Num: 5

Candidate Starts for Hanako\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: Heinz\_3 Start: 2117, Stop: 2356, Start Num: 3

Candidate Starts for Heinz\_3:

(Start: 3 @2117 has 7 MA's), (Start: 7 @2150 has 1 MA's), (14, 2204), (16, 2234), (20, 2273), (21, 2291), (22, 2294), (23, 2297), (26, 2327),

Gene: Hibiscus\_3 Start: 2117, Stop: 2356, Start Num: 3

Candidate Starts for Hibiscus\_3:

(Start: 3 @2117 has 7 MA's), (Start: 7 @2150 has 1 MA's), (14, 2204), (16, 2234), (21, 2291), (22, 2294), (23, 2297), (26, 2327),

Gene: Impisi\_3 Start: 2061, Stop: 2246, Start Num: 7

Candidate Starts for Impisi\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: Jamie19\_3 Start: 2037, Stop: 2246, Start Num: 5

Candidate Starts for Jamie19\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: Jojo24\_3 Start: 2112, Stop: 2351, Start Num: 3

Candidate Starts for Jojo24\_3:

(Start: 3 @2112 has 7 MA's), (Start: 7 @2145 has 1 MA's), (14, 2199), (16, 2229), (21, 2286), (22, 2289), (23, 2292), (26, 2322),

Gene: Journey\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Journey\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Kevin1\_3 Start: 2023, Stop: 2235, Start Num: 5

Candidate Starts for Kevin1\_3:

(Start: 5 @2023 has 40 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (14, 2104), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Lton\_3 Start: 1952, Stop: 2170, Start Num: 6

Candidate Starts for Lton\_3:

(Start: 6 @1952 has 5 MA's), (Start: 7 @1973 has 1 MA's), (Start: 8 @1985 has 3 MA's), (9, 1988), (11, 2015), (13, 2024), (14, 2027), (15, 2054), (17, 2072),

Gene: Magsby\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Magsby\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Melville\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Melville\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: MichelleMyBell\_3 Start: 2037, Stop: 2249, Start Num: 5

Candidate Starts for MichelleMyBell\_3:

(Start: 5 @2037 has 40 MA's), (Start: 10 @2082 has 2 MA's), (13, 2115), (14, 2118), (16, 2148), (22, 2208), (24, 2226), (25, 2235),

Gene: Moosehead\_3 Start: 1948, Stop: 2163, Start Num: 6

Candidate Starts for Moosehead\_3:

(Start: 6 @1948 has 5 MA's), (Start: 7 @1969 has 1 MA's), (Start: 8 @1981 has 3 MA's), (9, 1984), (11, 2011), (12, 2014), (13, 2020), (14, 2023), (21, 2110),

Gene: Nenae\_3 Start: 2037, Stop: 2246, Start Num: 5

Candidate Starts for Nenae\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: OneDirection\_3 Start: 1949, Stop: 2164, Start Num: 6

Candidate Starts for OneDirection\_3:

(Start: 6 @1949 has 5 MA's), (Start: 7 @1970 has 1 MA's), (Start: 8 @1982 has 3 MA's), (9, 1985), (11, 2012), (12, 2015), (13, 2021), (14, 2024), (18, 2072), (21, 2111),

Gene: Panchino\_3 Start: 2037, Stop: 2246, Start Num: 5

Candidate Starts for Panchino\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: Parmesanjohn\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Parmesanjohn\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Pepperoni\_3 Start: 2246, Stop: 2464, Start Num: 6

Candidate Starts for Pepperoni\_3:

(Start: 6 @2246 has 5 MA's), (Start: 7 @2267 has 1 MA's), (Start: 8 @2279 has 3 MA's), (9, 2282), (11, 2309), (14, 2321), (15, 2348), (17, 2366), (18, 2369),

Gene: PhancyPhin\_3 Start: 2037, Stop: 2246, Start Num: 5

Candidate Starts for PhancyPhin\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: Philonius\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Philonius\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Phloss\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Phloss\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Phrann\_3 Start: 2037, Stop: 2246, Start Num: 5

Candidate Starts for Phrann\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: Pipsqueaks\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Pipsqueaks\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Purgamenstris\_3 Start: 2079, Stop: 2246, Start Num: 10

Candidate Starts for Purgamenstris\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: Raymond7\_3 Start: 2037, Stop: 2246, Start Num: 5

Candidate Starts for Raymond7\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: Rebel\_3 Start: 2037, Stop: 2246, Start Num: 5

Candidate Starts for Rebel\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: Redi\_3 Start: 2037, Stop: 2246, Start Num: 5

Candidate Starts for Redi\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: Reyja\_4 Start: 2231, Stop: 2467, Start Num: 3

Candidate Starts for Reyja\_4:

(Start: 3 @2231 has 7 MA's), (Start: 7 @2264 has 1 MA's), (Start: 8 @2276 has 3 MA's), (14, 2318), (16, 2348), (23, 2411), (25, 2435), (27, 2462),

Gene: Rubeelu\_3 Start: 2068, Stop: 2235, Start Num: 10

Candidate Starts for Rubeelu\_3:

(Start: 5 @2023 has 40 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (14, 2104), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Santhid\_3 Start: 2114, Stop: 2353, Start Num: 3

Candidate Starts for Santhid\_3:

(Start: 3 @2114 has 7 MA's), (Start: 7 @2147 has 1 MA's), (14, 2201), (16, 2231), (22, 2291), (23, 2294), (26, 2324),

Gene: Schnauzer\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Schnauzer\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Scitech\_3 Start: 2050, Stop: 2235, Start Num: 7

Candidate Starts for Scitech\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: ShrimpFriedEgg\_3 Start: 2037, Stop: 2246, Start Num: 5

Candidate Starts for ShrimpFriedEgg\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: Shweta\_3 Start: 2037, Stop: 2246, Start Num: 5

Candidate Starts for Shweta\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: Silvafighter\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Silvafighter\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Silvy\_3 Start: 2062, Stop: 2235, Start Num: 8

Candidate Starts for Silvy\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: SkinnyPete\_3 Start: 2061, Stop: 2246, Start Num: 7

Candidate Starts for SkinnyPete\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: Smurph\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Smurph\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Snekmaggedon\_3 Start: 2037, Stop: 2246, Start Num: 5

Candidate Starts for Snekmaggedon\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: Spinach\_3 Start: 2037, Stop: 2246, Start Num: 5

Candidate Starts for Spinach\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: SpongeBob\_3 Start: 2037, Stop: 2246, Start Num: 5

Candidate Starts for SpongeBob\_3:

(Start: 5 @2037 has 40 MA's), (Start: 7 @2061 has 1 MA's), (Start: 10 @2079 has 2 MA's), (16, 2145), (22, 2205), (24, 2223), (25, 2232),

Gene: Tapioca\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Tapioca\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Tarzan\_3 Start: 2114, Stop: 2353, Start Num: 3

Candidate Starts for Tarzan\_3:

(Start: 3 @2114 has 7 MA's), (Start: 7 @2147 has 1 MA's), (14, 2201), (16, 2231), (21, 2288), (22, 2291), (23, 2294), (26, 2324),

Gene: Tessdabest\_2 Start: 2050, Stop: 2235, Start Num: 7

Candidate Starts for Tessdabest\_2:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Tortoise12\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Tortoise12\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Xeno\_3 Start: 2062, Stop: 2235, Start Num: 8

Candidate Starts for Xeno\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),

Gene: Xerxes\_3 Start: 2029, Stop: 2235, Start Num: 5

Candidate Starts for Xerxes\_3:

(Start: 5 @2029 has 40 MA's), (Start: 7 @2050 has 1 MA's), (Start: 8 @2062 has 3 MA's), (Start: 10 @2068 has 2 MA's), (13, 2101), (16, 2134), (22, 2194), (24, 2212), (25, 2221),