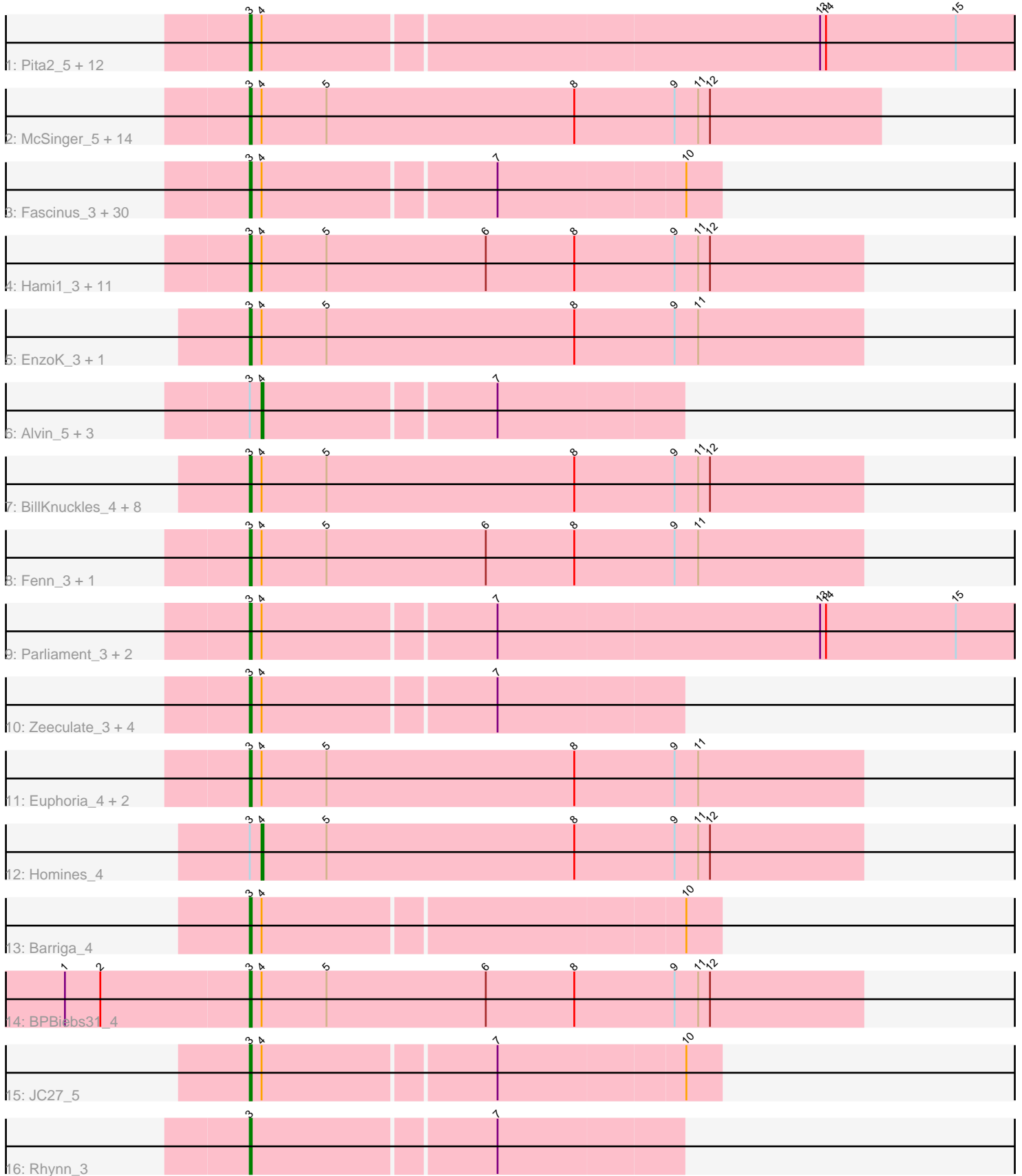


Pham 224451



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 224451 Report

This analysis was run 03/28/25 on database version 593.

Pham number 224451 has 104 members, 8 are drafts.

Phages represented in each track:

- Track 1 : Pita2_5, Pari_4, TwoPeat_4, Swole_5, BarrowTuph_3, Tripl3t_4, Marco3_3, JuliaChild_5, Rohr_4, Tote_5, Hope4ever_4, PSullivan_5, Tasp14_4
- Track 2 : McSinger_5, Zephyr_3, StewieG_3, Perseus_3, IgnatiusPatJac_3, BluSpix_3, Abrogate_40, Graduation_4, Espresso_4, Sanya_3, Gandalf20_4, PhrostyMug_3, Mule_3, Bethlehem_4, Aeneas_3
- Track 3 : Fascinus_3, Mryolo_3, Beatrix_3, Carlyle_5, Dulcie_3, Bexan_3, LiBib_3, Paraselene_3, Target_4, Applejack_4, Zeuska_3, BaconJack_4, SkiPole_5, Ciao_4, Lockley_4, Pinto_5, Dexes_5, Trouble_3, StrongArm_3, Nhonho_4, GrecoEtereo_5, Peterson_4, Nerujay_4, Michley_4, DD5_4, HarryOW_5, ProMouse_3, Bigfoot_3, Maroc7_3, Marsha_4, CactusRose_3
- Track 4 : Hami1_3, Phlippers_3, Altman_5, QTRLifeCrisis_3, Ringer_3, SwissCheese_3, MaryBeth_4, MetalQZJ_4, Kanely_5, Corvo_4, Forsytheast_3, Moose_3
- Track 5 : EnzoK_3, Papez_4
- Track 6 : Alvin_5, Treddle_4, Lesedi_3, Edtherson_4
- Track 7 : BillKnuckles_4, Pepe_5, DrFeelGood_3, JackSparrow_3, Marge_3, Wheeler_4, Gyzlar_5, Marcell_4, Bxb1_3
- Track 8 : Fenn_3, Naira_3
- Track 9 : Parliament_3, Niza_5, Lopton_4
- Track 10 : Zeeculate_3, Licorice_6, Monet_4, TheloniousMonk_4, Turj99_3
- Track 11 : Euphoria_4, Traft412_6, Gwendoluna_3
- Track 12 : Homines_4
- Track 13 : Barriga_4
- Track 14 : BPBiebs31_4
- Track 15 : JC27_5
- Track 16 : Rhyinn_3

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

The start number called the most often in the published annotations is 3, it was called in 91 of the 96 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Abrogate_40, Aeneas_3, Altman_5, Applejack_4, BPBiebs31_4, BaconJack_4, Barriga_4, BarrowTuph_3, Beatrix_3, Bethlehem_4, Bexan_3, Bigfoot_3, BillKnuckles_4, BluSpix_3, Bxb1_3, CactusRose_3, Carlyle_5, Ciao_4, Corvo_4, DD5_4, Dexes_5, DrFeelGood_3, Dulcie_3, EnzoK_3, Espresso_4, Euphoria_4, Fascinus_3, Fenn_3, Forsytheast_3, Gandalf20_4, Graduation_4, GrecoEtereo_5, Gwendoluna_3, Gyzlar_5, Hami1_3, HarryOW_5, Hope4ever_4, IgnatiusPatJac_3, JC27_5, JackSparrow_3, JuliaChild_5, Kanely_5, Licorice_6, LilBib_3, Lockley_4, Lopton_4, Marcell_4, Marco3_3, Marge_3, Maroc7_3, Marsha_4, MaryBeth_4, McSinger_5, MetalQZJ_4, Michley_4, Monet_4, Moose_3, Mryolo_3, Mule_3, Naira_3, Nerujay_4, Nhonho_4, Niza_5, PSullivan_5, Papez_4, Paraselene_3, Pari_4, Parliament_3, Pepe_5, Perseus_3, Peterson_4, Phlippers_3, PhrostyMug_3, Pinto_5, Pita2_5, ProMouse_3, QTRLifeCrisis_3, Rhynn_3, Ringer_3, Rohr_4, Sanya_3, SkiPole_5, StewieG_3, StrongArm_3, SwissCheese_3, Swole_5, Target_4, Tasp14_4, TheloniousMonk_4, Tote_5, Traft412_6, Tripl3t_4, Trouble_3, Turj99_3, TwoPeat_4, Wheeler_4, Zeeculate_3, Zephyr_3, Zeuska_3,

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

- Alvin_5, Edtherson_4, Homines_4, Lesedi_3, Treddle_4,

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

-

Summary by start number:

Start 3:

- Found in 104 of 104 (100.0%) of genes in pham
- Manual Annotations of this start: 91 of 96
- Called 95.2% of time when present
- Phage (with cluster) where this start called: Abrogate_40 (A1), Aeneas_3 (A1), Altman_5 (A1), Applejack_4 (A1), BPBiebs31_4 (A1), BaconJack_4 (A1), Barriga_4 (A1), BarrowTuph_3 (A1), Beatrix_3 (A1), Bethlehem_4 (A1), Bexan_3 (A1), Bigfoot_3 (A1), BillKnuckles_4 (A1), BluSpix_3 (A1), Bxb1_3 (A1), CactusRose_3 (A1), Carlyle_5 (A1), Ciao_4 (A1), Corvo_4 (A1), DD5_4 (A1), Dexes_5 (A1), DrFeelGood_3 (A1), Dulcie_3 (A1), EnzoK_3 (A1), Espresso_4 (A1), Euphoria_4 (A1), Fascinus_3 (A1), Fenn_3 (A1), Forsytheast_3 (A1), Gandalf20_4 (A1), Graduation_4 (A1), GrecoEtereo_5 (A1), Gwendoluna_3 (A1), Gyzlar_5 (A1), Hami1_3 (A1), HarryOW_5 (A1), Hope4ever_4 (A1), IgnatiusPatJac_3 (A1), JC27_5 (A1), JackSparrow_3 (A1), JuliaChild_5 (A1), Kanely_5 (A1), Licorice_6 (A1), LilBib_3 (A1), Lockley_4 (A1), Lopton_4 (A1), Marcell_4 (A1), Marco3_3 (A1), Marge_3 (A1), Maroc7_3 (A1), Marsha_4 (A1), MaryBeth_4 (A1), McSinger_5 (A1), MetalQZJ_4 (A1), Michley_4 (A1), Monet_4 (A1), Moose_3 (A1), Mryolo_3 (A1), Mule_3 (A1), Naira_3 (A1), Nerujay_4 (A1), Nhonho_4 (A1), Niza_5 (A1), PSullivan_5 (A1), Papez_4 (A1), Paraselene_3 (A1), Pari_4 (A1), Parliament_3 (A1), Pepe_5 (A1), Perseus_3 (A1), Peterson_4 (A1), Phlippers_3 (A1), PhrostyMug_3 (A1), Pinto_5 (A1), Pita2_5 (A1), ProMouse_3 (A1), QTRLifeCrisis_3 (A1), Rhynn_3 (A1), Ringer_3 (A1), Rohr_4 (A1), Sanya_3 (A1), SkiPole_5 (A1), StewieG_3 (A1), StrongArm_3 (A1), SwissCheese_3 (A1), Swole_5 (A1), Target_4 (A1), Tasp14_4 (A1), TheloniousMonk_4 (A1), Tote_5 (A1), Traft412_6 (A1), Tripl3t_4 (A1), Trouble_3 (A1), Turj99_3 (A1), TwoPeat_4 (A1), Wheeler_4 (A1), Zeeculate_3 (A1), Zephyr_3 (A1), Zeuska_3 (A1),

Start 4:

- Found in 103 of 104 (99.0%) of genes in pham

- Manual Annotations of this start: 5 of 96
- Called 4.9% of time when present
- Phage (with cluster) where this start called: Alvin_5 (A1), Edtherson_4 (A1), Homines_4 (A1), Lesedi_3 (A1), Treddle_4 (A1),

Summary by clusters:

There is one cluster represented in this pham: A1

Info for manual annotations of cluster A1:

- Start number 3 was manually annotated 91 times for cluster A1.
- Start number 4 was manually annotated 5 times for cluster A1.

Gene Information:

Gene: Abrogate_40 Start: 2265, Stop: 2576, Start Num: 3

Candidate Starts for Abrogate_40:

(Start: 3 @2265 has 91 MA's), (Start: 4 @2271 has 5 MA's), (5, 2304), (8, 2430), (9, 2481), (11, 2493), (12, 2499),

Gene: Aeneas_3 Start: 1532, Stop: 1843, Start Num: 3

Candidate Starts for Aeneas_3:

(Start: 3 @1532 has 91 MA's), (Start: 4 @1538 has 5 MA's), (5, 1571), (8, 1697), (9, 1748), (11, 1760), (12, 1766),

Gene: Altman_5 Start: 2176, Stop: 2487, Start Num: 3

Candidate Starts for Altman_5:

(Start: 3 @2176 has 91 MA's), (Start: 4 @2182 has 5 MA's), (5, 2215), (6, 2296), (8, 2341), (9, 2392), (11, 2404), (12, 2410),

Gene: Alvin_5 Start: 2099, Stop: 2305, Start Num: 4

Candidate Starts for Alvin_5:

(Start: 3 @2093 has 91 MA's), (Start: 4 @2099 has 5 MA's), (7, 2213),

Gene: Applejack_4 Start: 1684, Stop: 1914, Start Num: 3

Candidate Starts for Applejack_4:

(Start: 3 @1684 has 91 MA's), (Start: 4 @1690 has 5 MA's), (7, 1804), (10, 1897),

Gene: BPBiabs31_4 Start: 1769, Stop: 2080, Start Num: 3

Candidate Starts for BPBiabs31_4:

(1, 1676), (2, 1694), (Start: 3 @1769 has 91 MA's), (Start: 4 @1775 has 5 MA's), (5, 1808), (6, 1889), (8, 1934), (9, 1985), (11, 1997), (12, 2003),

Gene: BaconJack_4 Start: 1630, Stop: 1860, Start Num: 3

Candidate Starts for BaconJack_4:

(Start: 3 @1630 has 91 MA's), (Start: 4 @1636 has 5 MA's), (7, 1750), (10, 1843),

Gene: Barriga_4 Start: 1643, Stop: 1873, Start Num: 3

Candidate Starts for Barriga_4:

(Start: 3 @1643 has 91 MA's), (Start: 4 @1649 has 5 MA's), (10, 1856),

Gene: BarrowTuph_3 Start: 1535, Stop: 1954, Start Num: 3
Candidate Starts for BarrowTuph_3:
(Start: 3 @1535 has 91 MA's), (Start: 4 @1541 has 5 MA's), (13, 1817), (14, 1820), (15, 1886),

Gene: Beatrix_3 Start: 1483, Stop: 1713, Start Num: 3
Candidate Starts for Beatrix_3:
(Start: 3 @1483 has 91 MA's), (Start: 4 @1489 has 5 MA's), (7, 1603), (10, 1696),

Gene: Bethlehem_4 Start: 1685, Stop: 1996, Start Num: 3
Candidate Starts for Bethlehem_4:
(Start: 3 @1685 has 91 MA's), (Start: 4 @1691 has 5 MA's), (5, 1724), (8, 1850), (9, 1901), (11, 1913),
(12, 1919),

Gene: Bexan_3 Start: 1483, Stop: 1713, Start Num: 3
Candidate Starts for Bexan_3:
(Start: 3 @1483 has 91 MA's), (Start: 4 @1489 has 5 MA's), (7, 1603), (10, 1696),

Gene: Bigfoot_3 Start: 1542, Stop: 1772, Start Num: 3
Candidate Starts for Bigfoot_3:
(Start: 3 @1542 has 91 MA's), (Start: 4 @1548 has 5 MA's), (7, 1662), (10, 1755),

Gene: BillKnuckles_4 Start: 1808, Stop: 2119, Start Num: 3
Candidate Starts for BillKnuckles_4:
(Start: 3 @1808 has 91 MA's), (Start: 4 @1814 has 5 MA's), (5, 1847), (8, 1973), (9, 2024), (11, 2036),
(12, 2042),

Gene: BluSpix_3 Start: 1710, Stop: 2021, Start Num: 3
Candidate Starts for BluSpix_3:
(Start: 3 @1710 has 91 MA's), (Start: 4 @1716 has 5 MA's), (5, 1749), (8, 1875), (9, 1926), (11, 1938),
(12, 1944),

Gene: Bxb1_3 Start: 1716, Stop: 2027, Start Num: 3
Candidate Starts for Bxb1_3:
(Start: 3 @1716 has 91 MA's), (Start: 4 @1722 has 5 MA's), (5, 1755), (8, 1881), (9, 1932), (11, 1944),
(12, 1950),

Gene: CactusRose_3 Start: 1541, Stop: 1771, Start Num: 3
Candidate Starts for CactusRose_3:
(Start: 3 @1541 has 91 MA's), (Start: 4 @1547 has 5 MA's), (7, 1661), (10, 1754),

Gene: Carlyle_5 Start: 1922, Stop: 2152, Start Num: 3
Candidate Starts for Carlyle_5:
(Start: 3 @1922 has 91 MA's), (Start: 4 @1928 has 5 MA's), (7, 2042), (10, 2135),

Gene: Ciao_4 Start: 1773, Stop: 2003, Start Num: 3
Candidate Starts for Ciao_4:
(Start: 3 @1773 has 91 MA's), (Start: 4 @1779 has 5 MA's), (7, 1893), (10, 1986),

Gene: Corvo_4 Start: 1868, Stop: 2179, Start Num: 3
Candidate Starts for Corvo_4:
(Start: 3 @1868 has 91 MA's), (Start: 4 @1874 has 5 MA's), (5, 1907), (6, 1988), (8, 2033), (9, 2084),
(11, 2096), (12, 2102),

Gene: DD5_4 Start: 1675, Stop: 1905, Start Num: 3
Candidate Starts for DD5_4:
(Start: 3 @1675 has 91 MA's), (Start: 4 @1681 has 5 MA's), (7, 1795), (10, 1888),

Gene: Dexes_5 Start: 2353, Stop: 2583, Start Num: 3
Candidate Starts for Dexes_5:
(Start: 3 @2353 has 91 MA's), (Start: 4 @2359 has 5 MA's), (7, 2473), (10, 2566),

Gene: DrFeelGood_3 Start: 1481, Stop: 1792, Start Num: 3
Candidate Starts for DrFeelGood_3:
(Start: 3 @1481 has 91 MA's), (Start: 4 @1487 has 5 MA's), (5, 1520), (8, 1646), (9, 1697), (11, 1709),
(12, 1715),

Gene: Dulcie_3 Start: 1476, Stop: 1706, Start Num: 3
Candidate Starts for Dulcie_3:
(Start: 3 @1476 has 91 MA's), (Start: 4 @1482 has 5 MA's), (7, 1596), (10, 1689),

Gene: Edtherson_4 Start: 1699, Stop: 1905, Start Num: 4
Candidate Starts for Edtherson_4:
(Start: 3 @1693 has 91 MA's), (Start: 4 @1699 has 5 MA's), (7, 1813),

Gene: EnzoK_3 Start: 1659, Stop: 1970, Start Num: 3
Candidate Starts for EnzoK_3:
(Start: 3 @1659 has 91 MA's), (Start: 4 @1665 has 5 MA's), (5, 1698), (8, 1824), (9, 1875), (11, 1887),

Gene: Espresso_4 Start: 1776, Stop: 2087, Start Num: 3
Candidate Starts for Espresso_4:
(Start: 3 @1776 has 91 MA's), (Start: 4 @1782 has 5 MA's), (5, 1815), (8, 1941), (9, 1992), (11, 2004),
(12, 2010),

Gene: Euphoria_4 Start: 1673, Stop: 1984, Start Num: 3
Candidate Starts for Euphoria_4:
(Start: 3 @1673 has 91 MA's), (Start: 4 @1679 has 5 MA's), (5, 1712), (8, 1838), (9, 1889), (11, 1901),

Gene: Fascinus_3 Start: 1543, Stop: 1773, Start Num: 3
Candidate Starts for Fascinus_3:
(Start: 3 @1543 has 91 MA's), (Start: 4 @1549 has 5 MA's), (7, 1663), (10, 1756),

Gene: Fenn_3 Start: 1484, Stop: 1795, Start Num: 3
Candidate Starts for Fenn_3:
(Start: 3 @1484 has 91 MA's), (Start: 4 @1490 has 5 MA's), (5, 1523), (6, 1604), (8, 1649), (9, 1700),
(11, 1712),

Gene: Forsytheast_3 Start: 1707, Stop: 2018, Start Num: 3
Candidate Starts for Forsytheast_3:
(Start: 3 @1707 has 91 MA's), (Start: 4 @1713 has 5 MA's), (5, 1746), (6, 1827), (8, 1872), (9, 1923),
(11, 1935), (12, 1941),

Gene: Gandalf20_4 Start: 1786, Stop: 2097, Start Num: 3
Candidate Starts for Gandalf20_4:
(Start: 3 @1786 has 91 MA's), (Start: 4 @1792 has 5 MA's), (5, 1825), (8, 1951), (9, 2002), (11, 2014),
(12, 2020),

Gene: Graduation_4 Start: 1684, Stop: 1995, Start Num: 3
Candidate Starts for Graduation_4:
(Start: 3 @1684 has 91 MA's), (Start: 4 @1690 has 5 MA's), (5, 1723), (8, 1849), (9, 1900), (11, 1912), (12, 1918),

Gene: GrecoEtereo_5 Start: 2002, Stop: 2232, Start Num: 3
Candidate Starts for GrecoEtereo_5:
(Start: 3 @2002 has 91 MA's), (Start: 4 @2008 has 5 MA's), (7, 2122), (10, 2215),

Gene: Gwendoluna_3 Start: 1480, Stop: 1791, Start Num: 3
Candidate Starts for Gwendoluna_3:
(Start: 3 @1480 has 91 MA's), (Start: 4 @1486 has 5 MA's), (5, 1519), (8, 1645), (9, 1696), (11, 1708),

Gene: Gyzlar_5 Start: 2136, Stop: 2447, Start Num: 3
Candidate Starts for Gyzlar_5:
(Start: 3 @2136 has 91 MA's), (Start: 4 @2142 has 5 MA's), (5, 2175), (8, 2301), (9, 2352), (11, 2364), (12, 2370),

Gene: Hami1_3 Start: 1605, Stop: 1916, Start Num: 3
Candidate Starts for Hami1_3:
(Start: 3 @1605 has 91 MA's), (Start: 4 @1611 has 5 MA's), (5, 1644), (6, 1725), (8, 1770), (9, 1821), (11, 1833), (12, 1839),

Gene: HarryOW_5 Start: 2002, Stop: 2232, Start Num: 3
Candidate Starts for HarryOW_5:
(Start: 3 @2002 has 91 MA's), (Start: 4 @2008 has 5 MA's), (7, 2122), (10, 2215),

Gene: Homines_4 Start: 1717, Stop: 2022, Start Num: 4
Candidate Starts for Homines_4:
(Start: 3 @1711 has 91 MA's), (Start: 4 @1717 has 5 MA's), (5, 1750), (8, 1876), (9, 1927), (11, 1939), (12, 1945),

Gene: Hope4ever_4 Start: 1743, Stop: 2162, Start Num: 3
Candidate Starts for Hope4ever_4:
(Start: 3 @1743 has 91 MA's), (Start: 4 @1749 has 5 MA's), (13, 2025), (14, 2028), (15, 2094),

Gene: IgnatiusPatJac_3 Start: 1710, Stop: 2021, Start Num: 3
Candidate Starts for IgnatiusPatJac_3:
(Start: 3 @1710 has 91 MA's), (Start: 4 @1716 has 5 MA's), (5, 1749), (8, 1875), (9, 1926), (11, 1938), (12, 1944),

Gene: JC27_5 Start: 2189, Stop: 2419, Start Num: 3
Candidate Starts for JC27_5:
(Start: 3 @2189 has 91 MA's), (Start: 4 @2195 has 5 MA's), (7, 2309), (10, 2402),

Gene: JackSparrow_3 Start: 1540, Stop: 1851, Start Num: 3
Candidate Starts for JackSparrow_3:
(Start: 3 @1540 has 91 MA's), (Start: 4 @1546 has 5 MA's), (5, 1579), (8, 1705), (9, 1756), (11, 1768), (12, 1774),

Gene: JuliaChild_5 Start: 1919, Stop: 2338, Start Num: 3
Candidate Starts for JuliaChild_5:
(Start: 3 @1919 has 91 MA's), (Start: 4 @1925 has 5 MA's), (13, 2201), (14, 2204), (15, 2270),

Gene: Kanely_5 Start: 2176, Stop: 2487, Start Num: 3
Candidate Starts for Kanely_5:
(Start: 3 @2176 has 91 MA's), (Start: 4 @2182 has 5 MA's), (5, 2215), (6, 2296), (8, 2341), (9, 2392),
(11, 2404), (12, 2410),

Gene: Lesedi_3 Start: 1548, Stop: 1754, Start Num: 4
Candidate Starts for Lesedi_3:
(Start: 3 @1542 has 91 MA's), (Start: 4 @1548 has 5 MA's), (7, 1662),

Gene: Licorice_6 Start: 2404, Stop: 2616, Start Num: 3
Candidate Starts for Licorice_6:
(Start: 3 @2404 has 91 MA's), (Start: 4 @2410 has 5 MA's), (7, 2524),

Gene: LilBib_3 Start: 1543, Stop: 1773, Start Num: 3
Candidate Starts for LilBib_3:
(Start: 3 @1543 has 91 MA's), (Start: 4 @1549 has 5 MA's), (7, 1663), (10, 1756),

Gene: Lockley_4 Start: 1675, Stop: 1905, Start Num: 3
Candidate Starts for Lockley_4:
(Start: 3 @1675 has 91 MA's), (Start: 4 @1681 has 5 MA's), (7, 1795), (10, 1888),

Gene: Lopton_4 Start: 1784, Stop: 2203, Start Num: 3
Candidate Starts for Lopton_4:
(Start: 3 @1784 has 91 MA's), (Start: 4 @1790 has 5 MA's), (7, 1904), (13, 2066), (14, 2069), (15, 2135),

Gene: Marcell_4 Start: 1622, Stop: 1933, Start Num: 3
Candidate Starts for Marcell_4:
(Start: 3 @1622 has 91 MA's), (Start: 4 @1628 has 5 MA's), (5, 1661), (8, 1787), (9, 1838), (11, 1850),
(12, 1856),

Gene: Marco3_3 Start: 1534, Stop: 1953, Start Num: 3
Candidate Starts for Marco3_3:
(Start: 3 @1534 has 91 MA's), (Start: 4 @1540 has 5 MA's), (13, 1816), (14, 1819), (15, 1885),

Gene: Marge_3 Start: 1540, Stop: 1851, Start Num: 3
Candidate Starts for Marge_3:
(Start: 3 @1540 has 91 MA's), (Start: 4 @1546 has 5 MA's), (5, 1579), (8, 1705), (9, 1756), (11, 1768),
(12, 1774),

Gene: Maroc7_3 Start: 1544, Stop: 1774, Start Num: 3
Candidate Starts for Maroc7_3:
(Start: 3 @1544 has 91 MA's), (Start: 4 @1550 has 5 MA's), (7, 1664), (10, 1757),

Gene: Marsha_4 Start: 1997, Stop: 2227, Start Num: 3
Candidate Starts for Marsha_4:
(Start: 3 @1997 has 91 MA's), (Start: 4 @2003 has 5 MA's), (7, 2117), (10, 2210),

Gene: MaryBeth_4 Start: 1868, Stop: 2179, Start Num: 3
Candidate Starts for MaryBeth_4:
(Start: 3 @1868 has 91 MA's), (Start: 4 @1874 has 5 MA's), (5, 1907), (6, 1988), (8, 2033), (9, 2084),
(11, 2096), (12, 2102),

Gene: McSinger_5 Start: 1759, Stop: 2079, Start Num: 3

Candidate Starts for McSinger_5:

(Start: 3 @1759 has 91 MA's), (Start: 4 @1765 has 5 MA's), (5, 1798), (8, 1924), (9, 1975), (11, 1987), (12, 1993),

Gene: MetalQZJ_4 Start: 1868, Stop: 2179, Start Num: 3

Candidate Starts for MetalQZJ_4:

(Start: 3 @1868 has 91 MA's), (Start: 4 @1874 has 5 MA's), (5, 1907), (6, 1988), (8, 2033), (9, 2084), (11, 2096), (12, 2102),

Gene: Michley_4 Start: 1706, Stop: 1936, Start Num: 3

Candidate Starts for Michley_4:

(Start: 3 @1706 has 91 MA's), (Start: 4 @1712 has 5 MA's), (7, 1826), (10, 1919),

Gene: Monet_4 Start: 1693, Stop: 1905, Start Num: 3

Candidate Starts for Monet_4:

(Start: 3 @1693 has 91 MA's), (Start: 4 @1699 has 5 MA's), (7, 1813),

Gene: Moose_3 Start: 1707, Stop: 2018, Start Num: 3

Candidate Starts for Moose_3:

(Start: 3 @1707 has 91 MA's), (Start: 4 @1713 has 5 MA's), (5, 1746), (6, 1827), (8, 1872), (9, 1923), (11, 1935), (12, 1941),

Gene: Mryolo_3 Start: 1543, Stop: 1773, Start Num: 3

Candidate Starts for Mryolo_3:

(Start: 3 @1543 has 91 MA's), (Start: 4 @1549 has 5 MA's), (7, 1663), (10, 1756),

Gene: Mule_3 Start: 1532, Stop: 1843, Start Num: 3

Candidate Starts for Mule_3:

(Start: 3 @1532 has 91 MA's), (Start: 4 @1538 has 5 MA's), (5, 1571), (8, 1697), (9, 1748), (11, 1760), (12, 1766),

Gene: Naira_3 Start: 1484, Stop: 1795, Start Num: 3

Candidate Starts for Naira_3:

(Start: 3 @1484 has 91 MA's), (Start: 4 @1490 has 5 MA's), (5, 1523), (6, 1604), (8, 1649), (9, 1700), (11, 1712),

Gene: Nerujay_4 Start: 1618, Stop: 1848, Start Num: 3

Candidate Starts for Nerujay_4:

(Start: 3 @1618 has 91 MA's), (Start: 4 @1624 has 5 MA's), (7, 1738), (10, 1831),

Gene: Nhonho_4 Start: 1631, Stop: 1861, Start Num: 3

Candidate Starts for Nhonho_4:

(Start: 3 @1631 has 91 MA's), (Start: 4 @1637 has 5 MA's), (7, 1751), (10, 1844),

Gene: Niza_5 Start: 2182, Stop: 2601, Start Num: 3

Candidate Starts for Niza_5:

(Start: 3 @2182 has 91 MA's), (Start: 4 @2188 has 5 MA's), (7, 2302), (13, 2464), (14, 2467), (15, 2533),

Gene: PSullivan_5 Start: 1919, Stop: 2338, Start Num: 3

Candidate Starts for PSullivan_5:

(Start: 3 @1919 has 91 MA's), (Start: 4 @1925 has 5 MA's), (13, 2201), (14, 2204), (15, 2270),

Gene: Papez_4 Start: 1712, Stop: 2023, Start Num: 3

Candidate Starts for Papez_4:

(Start: 3 @1712 has 91 MA's), (Start: 4 @1718 has 5 MA's), (5, 1751), (8, 1877), (9, 1928), (11, 1940),

Gene: Paraselene_3 Start: 1534, Stop: 1764, Start Num: 3

Candidate Starts for Paraselene_3:

(Start: 3 @1534 has 91 MA's), (Start: 4 @1540 has 5 MA's), (7, 1654), (10, 1747),

Gene: Pari_4 Start: 1672, Stop: 2091, Start Num: 3

Candidate Starts for Pari_4:

(Start: 3 @1672 has 91 MA's), (Start: 4 @1678 has 5 MA's), (13, 1954), (14, 1957), (15, 2023),

Gene: Parliament_3 Start: 1541, Stop: 1960, Start Num: 3

Candidate Starts for Parliament_3:

(Start: 3 @1541 has 91 MA's), (Start: 4 @1547 has 5 MA's), (7, 1661), (13, 1823), (14, 1826), (15, 1892),

Gene: Pepe_5 Start: 2131, Stop: 2442, Start Num: 3

Candidate Starts for Pepe_5:

(Start: 3 @2131 has 91 MA's), (Start: 4 @2137 has 5 MA's), (5, 2170), (8, 2296), (9, 2347), (11, 2359), (12, 2365),

Gene: Perseus_3 Start: 1532, Stop: 1843, Start Num: 3

Candidate Starts for Perseus_3:

(Start: 3 @1532 has 91 MA's), (Start: 4 @1538 has 5 MA's), (5, 1571), (8, 1697), (9, 1748), (11, 1760), (12, 1766),

Gene: Peterson_4 Start: 2039, Stop: 2269, Start Num: 3

Candidate Starts for Peterson_4:

(Start: 3 @2039 has 91 MA's), (Start: 4 @2045 has 5 MA's), (7, 2159), (10, 2252),

Gene: Phlippers_3 Start: 1535, Stop: 1846, Start Num: 3

Candidate Starts for Phlippers_3:

(Start: 3 @1535 has 91 MA's), (Start: 4 @1541 has 5 MA's), (5, 1574), (6, 1655), (8, 1700), (9, 1751), (11, 1763), (12, 1769),

Gene: PhrostyMug_3 Start: 1532, Stop: 1843, Start Num: 3

Candidate Starts for PhrostyMug_3:

(Start: 3 @1532 has 91 MA's), (Start: 4 @1538 has 5 MA's), (5, 1571), (8, 1697), (9, 1748), (11, 1760), (12, 1766),

Gene: Pinto_5 Start: 1918, Stop: 2148, Start Num: 3

Candidate Starts for Pinto_5:

(Start: 3 @1918 has 91 MA's), (Start: 4 @1924 has 5 MA's), (7, 2038), (10, 2131),

Gene: Pita2_5 Start: 1919, Stop: 2338, Start Num: 3

Candidate Starts for Pita2_5:

(Start: 3 @1919 has 91 MA's), (Start: 4 @1925 has 5 MA's), (13, 2201), (14, 2204), (15, 2270),

Gene: ProMouse_3 Start: 1531, Stop: 1761, Start Num: 3

Candidate Starts for ProMouse_3:

(Start: 3 @1531 has 91 MA's), (Start: 4 @1537 has 5 MA's), (7, 1651), (10, 1744),

Gene: QTRlifeCrisis_3 Start: 1540, Stop: 1851, Start Num: 3

Candidate Starts for QTRlifeCrisis_3:

(Start: 3 @1540 has 91 MA's), (Start: 4 @1546 has 5 MA's), (5, 1579), (6, 1660), (8, 1705), (9, 1756), (11, 1768), (12, 1774),

Gene: Rhynn_3 Start: 1690, Stop: 1902, Start Num: 3

Candidate Starts for Rhynn_3:

(Start: 3 @1690 has 91 MA's), (7, 1810),

Gene: Ringer_3 Start: 1712, Stop: 2023, Start Num: 3

Candidate Starts for Ringer_3:

(Start: 3 @1712 has 91 MA's), (Start: 4 @1718 has 5 MA's), (5, 1751), (6, 1832), (8, 1877), (9, 1928), (11, 1940), (12, 1946),

Gene: Rohr_4 Start: 1711, Stop: 2130, Start Num: 3

Candidate Starts for Rohr_4:

(Start: 3 @1711 has 91 MA's), (Start: 4 @1717 has 5 MA's), (13, 1993), (14, 1996), (15, 2062),

Gene: Sanya_3 Start: 2264, Stop: 2584, Start Num: 3

Candidate Starts for Sanya_3:

(Start: 3 @2264 has 91 MA's), (Start: 4 @2270 has 5 MA's), (5, 2303), (8, 2429), (9, 2480), (11, 2492), (12, 2498),

Gene: SkiPole_5 Start: 1957, Stop: 2187, Start Num: 3

Candidate Starts for SkiPole_5:

(Start: 3 @1957 has 91 MA's), (Start: 4 @1963 has 5 MA's), (7, 2077), (10, 2170),

Gene: StewieG_3 Start: 1540, Stop: 1851, Start Num: 3

Candidate Starts for StewieG_3:

(Start: 3 @1540 has 91 MA's), (Start: 4 @1546 has 5 MA's), (5, 1579), (8, 1705), (9, 1756), (11, 1768), (12, 1774),

Gene: StrongArm_3 Start: 1483, Stop: 1713, Start Num: 3

Candidate Starts for StrongArm_3:

(Start: 3 @1483 has 91 MA's), (Start: 4 @1489 has 5 MA's), (7, 1603), (10, 1696),

Gene: SwissCheese_3 Start: 1707, Stop: 2018, Start Num: 3

Candidate Starts for SwissCheese_3:

(Start: 3 @1707 has 91 MA's), (Start: 4 @1713 has 5 MA's), (5, 1746), (6, 1827), (8, 1872), (9, 1923), (11, 1935), (12, 1941),

Gene: Swole_5 Start: 1919, Stop: 2338, Start Num: 3

Candidate Starts for Swole_5:

(Start: 3 @1919 has 91 MA's), (Start: 4 @1925 has 5 MA's), (13, 2201), (14, 2204), (15, 2270),

Gene: Target_4 Start: 1788, Stop: 2018, Start Num: 3

Candidate Starts for Target_4:

(Start: 3 @1788 has 91 MA's), (Start: 4 @1794 has 5 MA's), (7, 1908), (10, 2001),

Gene: Tasp14_4 Start: 1707, Stop: 2126, Start Num: 3

Candidate Starts for Tasp14_4:

(Start: 3 @1707 has 91 MA's), (Start: 4 @1713 has 5 MA's), (13, 1989), (14, 1992), (15, 2058),

Gene: TheloniousMonk_4 Start: 1691, Stop: 1903, Start Num: 3

Candidate Starts for TheloniousMonk_4:

(Start: 3 @1691 has 91 MA's), (Start: 4 @1697 has 5 MA's), (7, 1811),

Gene: Tote_5 Start: 1919, Stop: 2338, Start Num: 3

Candidate Starts for Tote_5:

(Start: 3 @1919 has 91 MA's), (Start: 4 @1925 has 5 MA's), (13, 2201), (14, 2204), (15, 2270),

Gene: Traft412_6 Start: 2332, Stop: 2643, Start Num: 3

Candidate Starts for Traft412_6:

(Start: 3 @2332 has 91 MA's), (Start: 4 @2338 has 5 MA's), (5, 2371), (8, 2497), (9, 2548), (11, 2560),

Gene: Treddle_4 Start: 1700, Stop: 1906, Start Num: 4

Candidate Starts for Treddle_4:

(Start: 3 @1694 has 91 MA's), (Start: 4 @1700 has 5 MA's), (7, 1814),

Gene: Tripl3t_4 Start: 1738, Stop: 2157, Start Num: 3

Candidate Starts for Tripl3t_4:

(Start: 3 @1738 has 91 MA's), (Start: 4 @1744 has 5 MA's), (13, 2020), (14, 2023), (15, 2089),

Gene: Trouble_3 Start: 1535, Stop: 1765, Start Num: 3

Candidate Starts for Trouble_3:

(Start: 3 @1535 has 91 MA's), (Start: 4 @1541 has 5 MA's), (7, 1655), (10, 1748),

Gene: Turj99_3 Start: 1541, Stop: 1753, Start Num: 3

Candidate Starts for Turj99_3:

(Start: 3 @1541 has 91 MA's), (Start: 4 @1547 has 5 MA's), (7, 1661),

Gene: TwoPeat_4 Start: 1712, Stop: 2131, Start Num: 3

Candidate Starts for TwoPeat_4:

(Start: 3 @1712 has 91 MA's), (Start: 4 @1718 has 5 MA's), (13, 1994), (14, 1997), (15, 2063),

Gene: Wheeler_4 Start: 1712, Stop: 2023, Start Num: 3

Candidate Starts for Wheeler_4:

(Start: 3 @1712 has 91 MA's), (Start: 4 @1718 has 5 MA's), (5, 1751), (8, 1877), (9, 1928), (11, 1940), (12, 1946),

Gene: Zeeculate_3 Start: 1475, Stop: 1687, Start Num: 3

Candidate Starts for Zeeculate_3:

(Start: 3 @1475 has 91 MA's), (Start: 4 @1481 has 5 MA's), (7, 1595),

Gene: Zephyr_3 Start: 1541, Stop: 1852, Start Num: 3

Candidate Starts for Zephyr_3:

(Start: 3 @1541 has 91 MA's), (Start: 4 @1547 has 5 MA's), (5, 1580), (8, 1706), (9, 1757), (11, 1769), (12, 1775),

Gene: Zeuska_3 Start: 1542, Stop: 1772, Start Num: 3

Candidate Starts for Zeuska_3:

(Start: 3 @1542 has 91 MA's), (Start: 4 @1548 has 5 MA's), (7, 1662), (10, 1755),