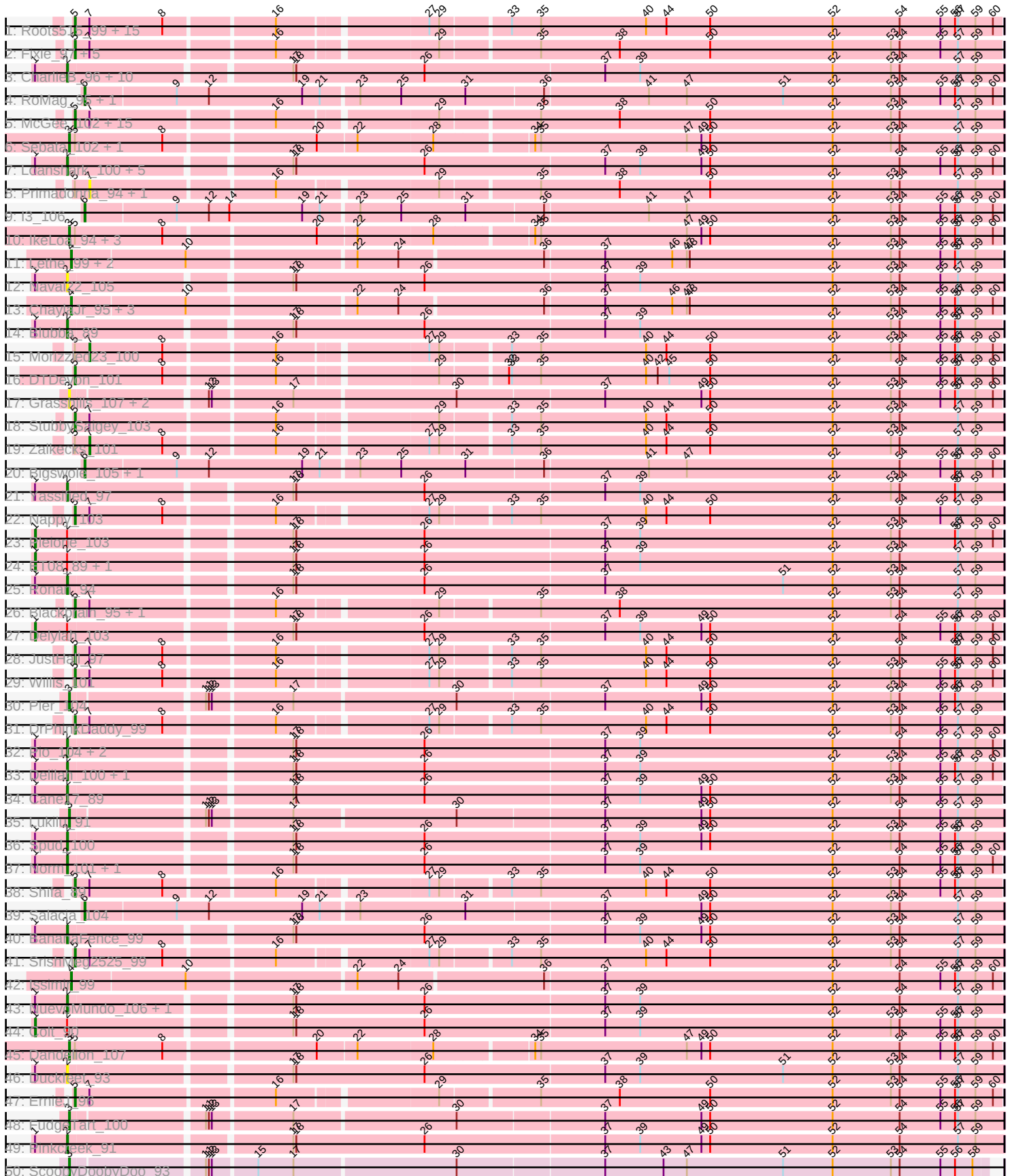




Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. If this default region is judged to be packed too tightly 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 248674 Report

This analysis was run 02/07/26 on database version 634.

Pham number 248674 has 121 members, 18 are drafts.

Phages represented in each track:

- Track 1 : Roots515\_99, MoMoMixon\_101, Megamind\_99, MikeLiesIn\_101, Caravan\_95, ParkTD\_101, FoxtrotP1\_100, YemiJoy2021\_101, Gizmo\_104, Erdmann\_101, NedWong\_101, Bipolarisk\_99, Izajani\_100, Jessibeth14\_99, Daffodil\_105, Shrimp\_100
- Track 2 : Fixie\_97, Belieber\_96, Chargie21\_97, Kboogie\_104, ChickenPhender\_96, Basquiat\_97
- Track 3 : CharlieB\_96, Moby\_91, BeanWater\_92, Sauce\_101, Blackdragon\_96, Moiqah\_91, Sprinklers\_96, Shaqnato\_93, Maby2021\_100, DirtMonster\_94, DeejaClivia\_89
- Track 4 : RoMag\_95, Domi\_94
- Track 5 : McGee\_102, Quasimodo\_101, Phox\_97, Cali\_96, Nidhogg\_101, LRRHood\_95, Ablatia\_99, Darko\_100, Wally\_99, JayJay\_106, HyRo\_92, Mangeria\_100, Janiyra\_102, Bezza\_89, YoungMoneyMata\_101, Fludd\_101
- Track 6 : Sebata\_102, LinStu\_100
- Track 7 : Loanshark\_100, Khaleesi\_99, Asterius\_103, McWolfish\_98, SVoro\_98, PurduePete\_100
- Track 8 : Primadonna\_94, BobaPhatt\_96
- Track 9 : I3\_106
- Track 10 : IkeLoa\_94, Kamryn\_100, LookingGlass\_101, StephanieG\_99
- Track 11 : Lethe\_99, Trinitium\_97, Iota\_95
- Track 12 : Naval22\_105
- Track 13 : ChaylaJr\_95, Catera\_97, Littleton\_100, Turret\_95
- Track 14 : Blubba\_89
- Track 15 : Morizzled23\_100
- Track 16 : DTDevon\_101
- Track 17 : Grasshills\_107, EggyFarm\_108, BigCity\_108
- Track 18 : StubbySaigey\_103
- Track 19 : Zalkecks\_101
- Track 20 : Bigswole\_105, Mikro\_98
- Track 21 : Yassified\_97
- Track 22 : Nappy\_103
- Track 23 : Pleione\_103
- Track 24 : ET08\_89, Alice\_93
- Track 25 : Ronan\_94
- Track 26 : Blackbrain\_95, Cactojaque\_95
- Track 27 : Delylah\_103
- Track 28 : JustHall\_97

- Track 29 : Willis\_101
- Track 30 : Pier\_104
- Track 31 : DrPhinkDaddy\_99
- Track 32 : Pio\_104, Zeenon\_102, Bxz1\_98
- Track 33 : Delilah\_100, Capablanca\_102
- Track 34 : Cane17\_89
- Track 35 : Lukilu\_91
- Track 36 : Spud\_100
- Track 37 : Norm\_101, ZygoTaiga\_99
- Track 38 : Shifa\_89
- Track 39 : Salacia\_104
- Track 40 : BananaFence\_99
- Track 41 : SrishMeg2525\_99
- Track 42 : Issimir\_99
- Track 43 : NuevoMundo\_106, Lee7\_98
- Track 44 : Colt\_90
- Track 45 : Dandelion\_107
- Track 46 : Duckfeet\_93
- Track 47 : ErnieJ\_96
- Track 48 : FudgeTart\_100
- Track 49 : Pinkcreek\_91
- Track 50 : ScoobyDoobyDoo\_93

***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 46 of the 103 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Ablatia\_99, Basquiat\_97, Belieber\_96, Bezza\_89, Bipolarisk\_99, Blackbrain\_95, Cactojaque\_95, Cali\_96, Caravan\_95, Chargie21\_97, ChickenPhender\_96, DTDevon\_101, Daffodil\_105, Darko\_100, DrPhinkDaddy\_99, Erdmann\_101, ErnieJ\_96, Fixie\_97, Fludd\_101, FoxtrotP1\_100, Gizmo\_104, HyRo\_92, Izajani\_100, Janiyrā\_102, JayJay\_106, Jessibeth14\_99, JustHall\_97, Kboogie\_104, LRRHood\_95, Mangeria\_100, McGee\_102, Megamind\_99, MikeLiesIn\_101, MoMoMixon\_101, Nappy\_103, NedWong\_101, Nidhogg\_101, ParkTD\_101, Phox\_97, Quasimodo\_101, Roots515\_99, Shifa\_89, Shrimp\_100, SrishMeg2525\_99, StubbySaigey\_103, Wally\_99, Willis\_101, YemiJoy2021\_101, YoungMoneyMata\_101,

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

- BobaPhatt\_96, Dandelion\_107, IkeLoa\_94, Kamryn\_100, LinStu\_100, LookingGlass\_101, Morizzled23\_100, Primadonna\_94, Sebata\_102, StephanieG\_99, Zalkecks\_101,

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

- Alice\_93, Asterius\_103, BananaFence\_99, BeanWater\_92, BigCity\_108, Bigswole\_105, Blackdragon\_96, Blubba\_89, Bxz1\_98, Cane17\_89, Capablanca\_102, Catera\_97, CharlieB\_96, ChaylaJr\_95, Colt\_90, DeejaClivia\_89, Delilah\_100, Delylah\_103, DirtMonster\_94, Domi\_94, Duckfeet\_93, ET08\_89, EggyFarm\_108, FudgeTart\_100, Grasshills\_107, I3\_106, Iota\_95, Issimir\_99, Khaleesi\_99, Lee7\_98,

Lethe\_99, Littleton\_100, Loanshark\_100, Lukilu\_91, Maby2021\_100, McWolfish\_98, Mikro\_98, Moby\_91, Moiqah\_91, Naval22\_105, Norm\_101, NuevoMundo\_106, Pier\_104, Pinkcreek\_91, Pio\_104, Pleione\_103, PurduePete\_100, RoMag\_95, Ronan\_94, SVoro\_98, Salacia\_104, Sauce\_101, ScoobyDoobyDoo\_93, Shaqnato\_93, Sprinklers\_96, Spud\_100, Trinitium\_97, Turret\_95, Yassified\_97, Zeenon\_102, ZygoTaiga\_99,

### Summary by start number:

#### Start 1:

- Found in 40 of 121 ( 33.1% ) of genes in pham
- Manual Annotations of this start: 5 of 103
- Called 12.5% of time when present
- Phage (with cluster) where this start called: Alice\_93 (C1), Colt\_90 (C1), Delylah\_103 (C1), ET08\_89 (C1), Pleione\_103 (C1),

#### Start 2:

- Found in 40 of 121 ( 33.1% ) of genes in pham
- Manual Annotations of this start: 27 of 103
- Called 87.5% of time when present
- Phage (with cluster) where this start called: Asterius\_103 (C1), BananaFence\_99 (C1), BeanWater\_92 (C1), Blackdragon\_96 (C1), Blubba\_89 (C1), Bxz1\_98 (C1), Cane17\_89 (C1), Capablanca\_102 (C1), CharlieB\_96 (C1), DeejaClivia\_89 (C1), Delilah\_100 (C1), DirtMonster\_94 (C1), Duckfeet\_93 (C1), Khaleesi\_99 (C1), Lee7\_98 (C1), Loanshark\_100 (C1), Maby2021\_100 (C1), McWolfish\_98 (C1), Moby\_91 (C1), Moiqah\_91 (C1), Naval22\_105 (C1), Norm\_101 (C1), NuevoMundo\_106 (C1), Pinkcreek\_91 (C1), Pio\_104 (C1), PurduePete\_100 (C1), Ronan\_94 (C1), SVoro\_98 (C1), Sauce\_101 (C1), Shaqnato\_93 (C1), Sprinklers\_96 (C1), Spud\_100 (C1), Yassified\_97 (C1), Zeenon\_102 (C1), ZygoTaiga\_99 (C1),

#### Start 3:

- Found in 14 of 121 ( 11.6% ) of genes in pham
- Manual Annotations of this start: 10 of 103
- Called 100.0% of time when present
- Phage (with cluster) where this start called: BigCity\_108 (C1), Dandelion\_107 (C1), EggFarm\_108 (C1), FudgeTart\_100 (C1), Grasshills\_107 (C1), IkeLoa\_94 (C1), Kamryn\_100 (C1), LinStu\_100 (C1), LookingGlass\_101 (C1), Lukilu\_91 (C1), Pier\_104 (C1), ScoobyDoobyDoo\_93 (C2), Sebata\_102 (C1), StephanieG\_99 (C1),

#### Start 4:

- Found in 8 of 121 ( 6.6% ) of genes in pham
- Manual Annotations of this start: 8 of 103
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Catera\_97 (C1), ChaylaJr\_95 (C1), Iota\_95 (C1), Issimir\_99 (C1), Lethe\_99 (C1), Littleton\_100 (C1), Trinitium\_97 (C1), Turret\_95 (C1),

#### Start 5:

- Found in 60 of 121 ( 49.6% ) of genes in pham
- Manual Annotations of this start: 46 of 103
- Called 81.7% of time when present
- Phage (with cluster) where this start called: Ablatia\_99 (C1), Basquiat\_97 (C1), Belieber\_96 (C1), Bezza\_89 (C1), Bipolarisk\_99 (C1), Blackbrain\_95 (C1),

Cactojaque\_95 (C1), Cali\_96 (C1), Caravan\_95 (C1), Chargie21\_97 (C1), ChickenPhender\_96 (C1), DTDevon\_101 (C1), Daffodil\_105 (C1), Darko\_100 (C1), DrPhinkDaddy\_99 (C1), Erdmann\_101 (C1), ErnieJ\_96 (C1), Fixie\_97 (C1), Fludd\_101 (C1), FoxtrotP1\_100 (C1), Gizmo\_104 (C1), HyRo\_92 (C1), Izajani\_100 (C1), Janiyr\_102 (C1), JayJay\_106 (C1), Jessibeth14\_99 (C1), JustHall\_97 (C1), Kboogie\_104 (C1), LRRHood\_95 (C1), Mangeria\_100 (C1), McGee\_102 (C1), Megamind\_99 (C1), MikeLiesIn\_101 (C1), MoMoMixon\_101 (C1), Nappy\_103 (C1), NedWong\_101 (C1), Nidhogg\_101 (C1), ParkTD\_101 (C1), Phox\_97 (C1), Quasimodo\_101 (C1), Roots515\_99 (C1), Shifa\_89 (C1), Shrimp\_100 (C1), SrishMeg2525\_99 (C1), StubbySaigey\_103 (C1), Wally\_99 (C1), Willis\_101 (C1), YemiJoy2021\_101 (C1), YoungMoneyMata\_101 (C1),

Start 6:

- Found in 6 of 121 ( 5.0% ) of genes in pham
- Manual Annotations of this start: 5 of 103
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bigswale\_105 (C1), Domi\_94 (C1), I3\_106 (C1), Mikro\_98 (C1), RoMag\_95 (C1), Salacia\_104 (C1),

Start 7:

- Found in 52 of 121 ( 43.0% ) of genes in pham
- Manual Annotations of this start: 2 of 103
- Called 7.7% of time when present
- Phage (with cluster) where this start called: BobaPhatt\_96 (C1), Morizzled23\_100 (C1), Primadonna\_94 (C1), Zalkecks\_101 (C1),

### Summary by clusters:

There are 2 clusters represented in this pham: C2, C1,

Info for manual annotations of cluster C1:

- Start number 1 was manually annotated 5 times for cluster C1.
- Start number 2 was manually annotated 27 times for cluster C1.
- Start number 3 was manually annotated 9 times for cluster C1.
- Start number 4 was manually annotated 8 times for cluster C1.
- Start number 5 was manually annotated 46 times for cluster C1.
- Start number 6 was manually annotated 5 times for cluster C1.
- Start number 7 was manually annotated 2 times for cluster C1.

Info for manual annotations of cluster C2:

- Start number 3 was manually annotated 1 time for cluster C2.

### Gene Information:

Gene: Ablatia\_99 Start: 49731, Stop: 50648, Start Num: 5

Candidate Starts for Ablatia\_99:

(Start: 5 @49731 has 46 MA's), (Start: 7 @49746 has 2 MA's), (16, 49926), (29, 50076), (35, 50172), (38, 50253), (50, 50346), (52, 50472), (53, 50532), (54, 50541), (57, 50601), (59, 50619),

Gene: Alice\_93 Start: 48979, Stop: 49953, Start Num: 1

Candidate Starts for Alice\_93:

(Start: 1 @48979 has 5 MA's), (Start: 2 @49012 has 27 MA's), (17, 49225), (18, 49228), (26, 49360), (37, 49543), (39, 49579), (52, 49777), (53, 49837), (54, 49846), (57, 49906), (59, 49924),

Gene: Asterius\_103 Start: 50347, Stop: 51285, Start Num: 2

Candidate Starts for Asterius\_103:

(Start: 1 @50314 has 5 MA's), (Start: 2 @50347 has 27 MA's), (17, 50560), (18, 50563), (26, 50695), (37, 50878), (39, 50914), (49, 50977), (50, 50986), (52, 51112), (54, 51181), (55, 51223), (56, 51238), (57, 51241), (59, 51259), (60, 51277),

Gene: BananaFence\_99 Start: 50531, Stop: 51472, Start Num: 2

Candidate Starts for BananaFence\_99:

(Start: 1 @50498 has 5 MA's), (Start: 2 @50531 has 27 MA's), (17, 50744), (18, 50747), (26, 50879), (37, 51062), (39, 51098), (49, 51161), (50, 51170), (52, 51296), (53, 51356), (54, 51365), (57, 51425), (59, 51443),

Gene: Basquiat\_97 Start: 49270, Stop: 50184, Start Num: 5

Candidate Starts for Basquiat\_97:

(Start: 5 @49270 has 46 MA's), (Start: 7 @49285 has 2 MA's), (16, 49465), (29, 49615), (35, 49711), (38, 49792), (50, 49885), (52, 50011), (53, 50071), (54, 50080), (55, 50122), (57, 50140), (59, 50158),

Gene: BeanWater\_92 Start: 50127, Stop: 51068, Start Num: 2

Candidate Starts for BeanWater\_92:

(Start: 1 @50094 has 5 MA's), (Start: 2 @50127 has 27 MA's), (17, 50340), (18, 50343), (26, 50475), (37, 50658), (39, 50694), (52, 50892), (53, 50952), (54, 50961), (57, 51021), (59, 51039),

Gene: Belieber\_96 Start: 49617, Stop: 50531, Start Num: 5

Candidate Starts for Belieber\_96:

(Start: 5 @49617 has 46 MA's), (Start: 7 @49632 has 2 MA's), (16, 49812), (29, 49962), (35, 50058), (38, 50139), (50, 50232), (52, 50358), (53, 50418), (54, 50427), (55, 50469), (57, 50487), (59, 50505),

Gene: Bezza\_89 Start: 49574, Stop: 50491, Start Num: 5

Candidate Starts for Bezza\_89:

(Start: 5 @49574 has 46 MA's), (Start: 7 @49589 has 2 MA's), (16, 49769), (29, 49919), (35, 50015), (38, 50096), (50, 50189), (52, 50315), (53, 50375), (54, 50384), (57, 50444), (59, 50462),

Gene: BigCity\_108 Start: 52801, Stop: 53727, Start Num: 3

Candidate Starts for BigCity\_108:

(Start: 3 @52801 has 10 MA's), (12, 52930), (13, 52933), (17, 53011), (30, 53173), (37, 53320), (49, 53419), (50, 53428), (52, 53554), (53, 53614), (54, 53623), (55, 53665), (56, 53680), (57, 53683), (59, 53701), (60, 53719),

Gene: Bigswole\_105 Start: 53326, Stop: 54252, Start Num: 6

Candidate Starts for Bigswole\_105:

(Start: 6 @53326 has 5 MA's), (9, 53416), (12, 53449), (19, 53545), (21, 53563), (23, 53599), (25, 53641), (31, 53707), (36, 53785), (41, 53890), (47, 53929), (52, 54079), (54, 54148), (55, 54190), (56, 54205), (57, 54208), (59, 54226), (60, 54244),

Gene: Bipolarisk\_99 Start: 50549, Stop: 51463, Start Num: 5

Candidate Starts for Bipolarisk\_99:

(Start: 5 @50549 has 46 MA's), (Start: 7 @50564 has 2 MA's), (8, 50639), (16, 50744), (27, 50885), (29, 50894), (33, 50960), (35, 50990), (40, 51098), (44, 51119), (50, 51164), (52, 51290), (54, 51359), (55, 51401), (56, 51416), (57, 51419), (59, 51437), (60, 51455),

Gene: Blackbrain\_95 Start: 48848, Stop: 49765, Start Num: 5

Candidate Starts for Blackbrain\_95:

(Start: 5 @48848 has 46 MA's), (Start: 7 @48863 has 2 MA's), (16, 49043), (29, 49193), (35, 49289), (38, 49370), (52, 49589), (53, 49649), (54, 49658), (57, 49718), (59, 49736),

Gene: Blackdragon\_96 Start: 49954, Stop: 50895, Start Num: 2

Candidate Starts for Blackdragon\_96:

(Start: 1 @49921 has 5 MA's), (Start: 2 @49954 has 27 MA's), (17, 50167), (18, 50170), (26, 50302), (37, 50485), (39, 50521), (52, 50719), (53, 50779), (54, 50788), (57, 50848), (59, 50866),

Gene: Blubba\_89 Start: 48921, Stop: 49859, Start Num: 2

Candidate Starts for Blubba\_89:

(Start: 1 @48888 has 5 MA's), (Start: 2 @48921 has 27 MA's), (17, 49134), (18, 49137), (26, 49269), (37, 49452), (39, 49488), (52, 49686), (53, 49746), (54, 49755), (55, 49797), (56, 49812), (57, 49815), (59, 49833),

Gene: BobaPhatt\_96 Start: 48910, Stop: 49812, Start Num: 7

Candidate Starts for BobaPhatt\_96:

(Start: 5 @48895 has 46 MA's), (Start: 7 @48910 has 2 MA's), (16, 49090), (29, 49240), (35, 49336), (38, 49417), (50, 49510), (52, 49636), (53, 49696), (54, 49705), (57, 49765), (59, 49783),

Gene: Bxz1\_98 Start: 52296, Stop: 53234, Start Num: 2

Candidate Starts for Bxz1\_98:

(Start: 1 @52263 has 5 MA's), (Start: 2 @52296 has 27 MA's), (17, 52509), (18, 52512), (26, 52644), (37, 52827), (39, 52863), (52, 53061), (54, 53130), (55, 53172), (57, 53190), (59, 53208), (60, 53226),

Gene: Cactojaque\_95 Start: 48955, Stop: 49872, Start Num: 5

Candidate Starts for Cactojaque\_95:

(Start: 5 @48955 has 46 MA's), (Start: 7 @48970 has 2 MA's), (16, 49150), (29, 49300), (35, 49396), (38, 49477), (52, 49696), (53, 49756), (54, 49765), (57, 49825), (59, 49843),

Gene: Cali\_96 Start: 50881, Stop: 51798, Start Num: 5

Candidate Starts for Cali\_96:

(Start: 5 @50881 has 46 MA's), (Start: 7 @50896 has 2 MA's), (16, 51076), (29, 51226), (35, 51322), (38, 51403), (50, 51496), (52, 51622), (53, 51682), (54, 51691), (57, 51751), (59, 51769),

Gene: Cane17\_89 Start: 48994, Stop: 49932, Start Num: 2

Candidate Starts for Cane17\_89:

(Start: 1 @48961 has 5 MA's), (Start: 2 @48994 has 27 MA's), (17, 49207), (18, 49210), (26, 49342), (37, 49525), (39, 49561), (49, 49624), (50, 49633), (52, 49759), (53, 49819), (54, 49828), (55, 49870), (57, 49888), (59, 49906),

Gene: Capablanca\_102 Start: 51109, Stop: 52047, Start Num: 2

Candidate Starts for Capablanca\_102:

(Start: 1 @51076 has 5 MA's), (Start: 2 @51109 has 27 MA's), (17, 51322), (18, 51325), (26, 51457), (37, 51640), (39, 51676), (52, 51874), (53, 51934), (54, 51943), (55, 51985), (56, 52000), (57, 52003), (59, 52021), (60, 52039),

Gene: Caravan\_95 Start: 50235, Stop: 51149, Start Num: 5

Candidate Starts for Caravan\_95:

(Start: 5 @50235 has 46 MA's), (Start: 7 @50250 has 2 MA's), (8, 50325), (16, 50430), (27, 50571), (29, 50580), (33, 50646), (35, 50676), (40, 50784), (44, 50805), (50, 50850), (52, 50976), (54, 51045), (55, 51087), (56, 51102), (57, 51105), (59, 51123), (60, 51141),

Gene: Catera\_97 Start: 49133, Stop: 50065, Start Num: 4

Candidate Starts for Catera\_97:

(Start: 4 @49133 has 8 MA's), (10, 49247), (22, 49412), (24, 49454), (36, 49598), (37, 49658), (46, 49727), (47, 49742), (48, 49745), (52, 49892), (53, 49952), (54, 49961), (55, 50003), (56, 50018), (57, 50021), (59, 50039), (60, 50057),

Gene: Chargie21\_97 Start: 49270, Stop: 50184, Start Num: 5

Candidate Starts for Chargie21\_97:

(Start: 5 @49270 has 46 MA's), (Start: 7 @49285 has 2 MA's), (16, 49465), (29, 49615), (35, 49711), (38, 49792), (50, 49885), (52, 50011), (53, 50071), (54, 50080), (55, 50122), (57, 50140), (59, 50158),

Gene: CharlieB\_96 Start: 49261, Stop: 50202, Start Num: 2

Candidate Starts for CharlieB\_96:

(Start: 1 @49228 has 5 MA's), (Start: 2 @49261 has 27 MA's), (17, 49474), (18, 49477), (26, 49609), (37, 49792), (39, 49828), (52, 50026), (53, 50086), (54, 50095), (57, 50155), (59, 50173),

Gene: ChaylaJr\_95 Start: 48759, Stop: 49691, Start Num: 4

Candidate Starts for ChaylaJr\_95:

(Start: 4 @48759 has 8 MA's), (10, 48873), (22, 49038), (24, 49080), (36, 49224), (37, 49284), (46, 49353), (47, 49368), (48, 49371), (52, 49518), (53, 49578), (54, 49587), (55, 49629), (56, 49644), (57, 49647), (59, 49665), (60, 49683),

Gene: ChickenPhender\_96 Start: 49079, Stop: 49993, Start Num: 5

Candidate Starts for ChickenPhender\_96:

(Start: 5 @49079 has 46 MA's), (Start: 7 @49094 has 2 MA's), (16, 49274), (29, 49424), (35, 49520), (38, 49601), (50, 49694), (52, 49820), (53, 49880), (54, 49889), (55, 49931), (57, 49949), (59, 49967),

Gene: Colt\_90 Start: 49557, Stop: 50528, Start Num: 1

Candidate Starts for Colt\_90:

(Start: 1 @49557 has 5 MA's), (Start: 2 @49590 has 27 MA's), (17, 49803), (18, 49806), (26, 49938), (37, 50121), (39, 50157), (52, 50355), (53, 50415), (54, 50424), (55, 50466), (56, 50481), (57, 50484), (59, 50502),

Gene: DTDevon\_101 Start: 51152, Stop: 52066, Start Num: 5

Candidate Starts for DTDevon\_101:

(Start: 5 @51152 has 46 MA's), (8, 51242), (16, 51347), (29, 51497), (32, 51560), (33, 51563), (35, 51593), (40, 51701), (42, 51713), (45, 51725), (50, 51767), (52, 51893), (54, 51962), (55, 52004), (56, 52019), (57, 52022), (59, 52040), (60, 52058),

Gene: Daffodil\_105 Start: 50849, Stop: 51763, Start Num: 5

Candidate Starts for Daffodil\_105:

(Start: 5 @50849 has 46 MA's), (Start: 7 @50864 has 2 MA's), (8, 50939), (16, 51044), (27, 51185), (29, 51194), (33, 51260), (35, 51290), (40, 51398), (44, 51419), (50, 51464), (52, 51590), (54, 51659), (55, 51701), (56, 51716), (57, 51719), (59, 51737), (60, 51755),

Gene: Dandelion\_107 Start: 53271, Stop: 54200, Start Num: 3

Candidate Starts for Dandelion\_107:

(Start: 3 @53271 has 10 MA's), (Start: 5 @53277 has 46 MA's), (8, 53367), (20, 53514), (22, 53553), (28, 53628), (34, 53721), (35, 53727), (47, 53877), (49, 53892), (50, 53901), (52, 54027), (54, 54096), (55, 54138), (56, 54153), (57, 54156), (59, 54174), (60, 54192),

Gene: Darko\_100 Start: 50790, Stop: 51707, Start Num: 5

Candidate Starts for Darko\_100:

(Start: 5 @50790 has 46 MA's), (Start: 7 @50805 has 2 MA's), (16, 50985), (29, 51135), (35, 51231), (38, 51312), (50, 51405), (52, 51531), (53, 51591), (54, 51600), (57, 51660), (59, 51678),

Gene: DeejaClivia\_89 Start: 47443, Stop: 48384, Start Num: 2

Candidate Starts for DeejaClivia\_89:

(Start: 1 @47410 has 5 MA's), (Start: 2 @47443 has 27 MA's), (17, 47656), (18, 47659), (26, 47791), (37, 47974), (39, 48010), (52, 48208), (53, 48268), (54, 48277), (57, 48337), (59, 48355),

Gene: Delilah\_100 Start: 50979, Stop: 51917, Start Num: 2

Candidate Starts for Delilah\_100:

(Start: 1 @50946 has 5 MA's), (Start: 2 @50979 has 27 MA's), (17, 51192), (18, 51195), (26, 51327), (37, 51510), (39, 51546), (52, 51744), (53, 51804), (54, 51813), (55, 51855), (56, 51870), (57, 51873), (59, 51891), (60, 51909),

Gene: Delylah\_103 Start: 50490, Stop: 51461, Start Num: 1

Candidate Starts for Delylah\_103:

(Start: 1 @50490 has 5 MA's), (Start: 2 @50523 has 27 MA's), (17, 50736), (18, 50739), (26, 50871), (37, 51054), (39, 51090), (49, 51153), (50, 51162), (52, 51288), (54, 51357), (55, 51399), (56, 51414), (57, 51417), (59, 51435), (60, 51453),

Gene: DirtMonster\_94 Start: 50017, Stop: 50958, Start Num: 2

Candidate Starts for DirtMonster\_94:

(Start: 1 @49984 has 5 MA's), (Start: 2 @50017 has 27 MA's), (17, 50230), (18, 50233), (26, 50365), (37, 50548), (39, 50584), (52, 50782), (53, 50842), (54, 50851), (57, 50911), (59, 50929),

Gene: Domi\_94 Start: 49887, Stop: 50813, Start Num: 6

Candidate Starts for Domi\_94:

(Start: 6 @49887 has 5 MA's), (9, 49977), (12, 50010), (19, 50106), (21, 50124), (23, 50160), (25, 50202), (31, 50268), (36, 50346), (41, 50451), (47, 50490), (51, 50589), (52, 50640), (53, 50700), (54, 50709), (55, 50751), (56, 50766), (57, 50769), (59, 50787), (60, 50805),

Gene: DrPhinkDaddy\_99 Start: 51069, Stop: 51986, Start Num: 5

Candidate Starts for DrPhinkDaddy\_99:

(Start: 5 @51069 has 46 MA's), (Start: 7 @51084 has 2 MA's), (8, 51159), (16, 51264), (27, 51405), (29, 51414), (33, 51480), (35, 51510), (40, 51618), (44, 51639), (50, 51684), (52, 51810), (53, 51870), (54, 51879), (55, 51921), (57, 51939), (59, 51957),

Gene: Duckfeet\_93 Start: 48975, Stop: 49916, Start Num: 2

Candidate Starts for Duckfeet\_93:

(Start: 1 @48942 has 5 MA's), (Start: 2 @48975 has 27 MA's), (17, 49188), (18, 49191), (26, 49323), (37, 49506), (39, 49542), (51, 49689), (52, 49740), (53, 49800), (54, 49809), (57, 49869), (59, 49887),

Gene: ET08\_89 Start: 49483, Stop: 50457, Start Num: 1

Candidate Starts for ET08\_89:

(Start: 1 @49483 has 5 MA's), (Start: 2 @49516 has 27 MA's), (17, 49729), (18, 49732), (26, 49864), (37, 50047), (39, 50083), (52, 50281), (53, 50341), (54, 50350), (57, 50410), (59, 50428),

Gene: EggyFarm\_108 Start: 52801, Stop: 53727, Start Num: 3

Candidate Starts for EggyFarm\_108:

(Start: 3 @52801 has 10 MA's), (12, 52930), (13, 52933), (17, 53011), (30, 53173), (37, 53320), (49, 53419), (50, 53428), (52, 53554), (53, 53614), (54, 53623), (55, 53665), (56, 53680), (57, 53683), (59, 53701), (60, 53719),

Gene: Erdmann\_101 Start: 50850, Stop: 51764, Start Num: 5

Candidate Starts for Erdmann\_101:

(Start: 5 @50850 has 46 MA's), (Start: 7 @50865 has 2 MA's), (8, 50940), (16, 51045), (27, 51186), (29, 51195), (33, 51261), (35, 51291), (40, 51399), (44, 51420), (50, 51465), (52, 51591), (54, 51660), (55, 51702), (56, 51717), (57, 51720), (59, 51738), (60, 51756),

Gene: ErnieJ\_96 Start: 49060, Stop: 49974, Start Num: 5

Candidate Starts for ErnieJ\_96:

(Start: 5 @49060 has 46 MA's), (Start: 7 @49075 has 2 MA's), (16, 49255), (29, 49405), (35, 49501), (38, 49582), (50, 49675), (52, 49801), (53, 49861), (54, 49870), (55, 49912), (56, 49927), (57, 49930), (59, 49948), (60, 49966),

Gene: Fixie\_97 Start: 49495, Stop: 50409, Start Num: 5

Candidate Starts for Fixie\_97:

(Start: 5 @49495 has 46 MA's), (Start: 7 @49510 has 2 MA's), (16, 49690), (29, 49840), (35, 49936), (38, 50017), (50, 50110), (52, 50236), (53, 50296), (54, 50305), (55, 50347), (57, 50365), (59, 50383),

Gene: Fludd\_101 Start: 49705, Stop: 50619, Start Num: 5

Candidate Starts for Fludd\_101:

(Start: 5 @49705 has 46 MA's), (Start: 7 @49720 has 2 MA's), (16, 49900), (29, 50050), (35, 50146), (38, 50227), (50, 50320), (52, 50446), (53, 50506), (54, 50515), (57, 50575), (59, 50593),

Gene: FoxtrotP1\_100 Start: 52020, Stop: 52934, Start Num: 5

Candidate Starts for FoxtrotP1\_100:

(Start: 5 @52020 has 46 MA's), (Start: 7 @52035 has 2 MA's), (8, 52110), (16, 52215), (27, 52356), (29, 52365), (33, 52431), (35, 52461), (40, 52569), (44, 52590), (50, 52635), (52, 52761), (54, 52830), (55, 52872), (56, 52887), (57, 52890), (59, 52908), (60, 52926),

Gene: FudgeTart\_100 Start: 50127, Stop: 51056, Start Num: 3

Candidate Starts for FudgeTart\_100:

(Start: 3 @50127 has 10 MA's), (11, 50253), (12, 50256), (13, 50259), (17, 50337), (30, 50499), (37, 50646), (49, 50745), (50, 50754), (52, 50880), (54, 50949), (55, 50991), (56, 51006), (57, 51009), (59, 51027),

Gene: Gizmo\_104 Start: 52000, Stop: 52914, Start Num: 5

Candidate Starts for Gizmo\_104:

(Start: 5 @52000 has 46 MA's), (Start: 7 @52015 has 2 MA's), (8, 52090), (16, 52195), (27, 52336), (29, 52345), (33, 52411), (35, 52441), (40, 52549), (44, 52570), (50, 52615), (52, 52741), (54, 52810), (55, 52852), (56, 52867), (57, 52870), (59, 52888), (60, 52906),

Gene: Grasshills\_107 Start: 52801, Stop: 53727, Start Num: 3

Candidate Starts for Grasshills\_107:

(Start: 3 @52801 has 10 MA's), (12, 52930), (13, 52933), (17, 53011), (30, 53173), (37, 53320), (49, 53419), (50, 53428), (52, 53554), (53, 53614), (54, 53623), (55, 53665), (56, 53680), (57, 53683), (59, 53701), (60, 53719),

Gene: HyRo\_92 Start: 49635, Stop: 50552, Start Num: 5

Candidate Starts for HyRo\_92:

(Start: 5 @49635 has 46 MA's), (Start: 7 @49650 has 2 MA's), (16, 49830), (29, 49980), (35, 50076), (38, 50157), (50, 50250), (52, 50376), (53, 50436), (54, 50445), (57, 50505), (59, 50523),

Gene: I3\_106 Start: 51339, Stop: 52265, Start Num: 6

Candidate Starts for I3\_106:

(Start: 6 @51339 has 5 MA's), (9, 51429), (12, 51462), (14, 51483), (19, 51558), (21, 51576), (23, 51612), (25, 51654), (31, 51720), (36, 51798), (41, 51903), (47, 51942), (52, 52092), (53, 52152), (54, 52161), (55, 52203), (56, 52218), (57, 52221), (59, 52239), (60, 52257),

Gene: IkeLoa\_94 Start: 49446, Stop: 50375, Start Num: 3

Candidate Starts for IkeLoa\_94:

(Start: 3 @49446 has 10 MA's), (Start: 5 @49452 has 46 MA's), (8, 49542), (20, 49689), (22, 49728), (28, 49803), (34, 49896), (35, 49902), (47, 50052), (49, 50067), (50, 50076), (52, 50202), (53, 50262), (54, 50271), (55, 50313), (56, 50328), (57, 50331), (59, 50349), (60, 50367),

Gene: Iota\_95 Start: 49803, Stop: 50735, Start Num: 4

Candidate Starts for Iota\_95:

(Start: 4 @49803 has 8 MA's), (10, 49917), (22, 50082), (24, 50124), (36, 50268), (37, 50328), (46, 50397), (47, 50412), (48, 50415), (52, 50562), (53, 50622), (54, 50631), (55, 50673), (56, 50688), (57, 50691), (59, 50709),

Gene: Issimir\_99 Start: 50806, Stop: 51738, Start Num: 4

Candidate Starts for Issimir\_99:

(Start: 4 @50806 has 8 MA's), (10, 50920), (22, 51085), (24, 51127), (36, 51271), (37, 51331), (52, 51565), (54, 51634), (55, 51676), (56, 51691), (57, 51694), (59, 51712), (60, 51730),

Gene: Izajani\_100 Start: 51030, Stop: 51944, Start Num: 5

Candidate Starts for Izajani\_100:

(Start: 5 @51030 has 46 MA's), (Start: 7 @51045 has 2 MA's), (8, 51120), (16, 51225), (27, 51366), (29, 51375), (33, 51441), (35, 51471), (40, 51579), (44, 51600), (50, 51645), (52, 51771), (54, 51840), (55, 51882), (56, 51897), (57, 51900), (59, 51918), (60, 51936),

Gene: Janiyra\_102 Start: 50308, Stop: 51225, Start Num: 5

Candidate Starts for Janiyra\_102:

(Start: 5 @50308 has 46 MA's), (Start: 7 @50323 has 2 MA's), (16, 50503), (29, 50653), (35, 50749), (38, 50830), (50, 50923), (52, 51049), (53, 51109), (54, 51118), (57, 51178), (59, 51196),

Gene: JayJay\_106 Start: 52075, Stop: 52992, Start Num: 5

Candidate Starts for JayJay\_106:

(Start: 5 @52075 has 46 MA's), (Start: 7 @52090 has 2 MA's), (16, 52270), (29, 52420), (35, 52516), (38, 52597), (50, 52690), (52, 52816), (53, 52876), (54, 52885), (57, 52945), (59, 52963),

Gene: Jessibeth14\_99 Start: 50635, Stop: 51549, Start Num: 5

Candidate Starts for Jessibeth14\_99:

(Start: 5 @50635 has 46 MA's), (Start: 7 @50650 has 2 MA's), (8, 50725), (16, 50830), (27, 50971), (29, 50980), (33, 51046), (35, 51076), (40, 51184), (44, 51205), (50, 51250), (52, 51376), (54, 51445), (55, 51487), (56, 51502), (57, 51505), (59, 51523), (60, 51541),

Gene: JustHall\_97 Start: 50173, Stop: 51087, Start Num: 5

Candidate Starts for JustHall\_97:

(Start: 5 @50173 has 46 MA's), (Start: 7 @50188 has 2 MA's), (8, 50263), (16, 50368), (27, 50509), (29, 50518), (33, 50584), (35, 50614), (40, 50722), (44, 50743), (50, 50788), (52, 50914), (54, 50983), (56, 51040), (57, 51043), (59, 51061), (60, 51079),

Gene: Kamryn\_100 Start: 51441, Stop: 52370, Start Num: 3

Candidate Starts for Kamryn\_100:

(Start: 3 @51441 has 10 MA's), (Start: 5 @51447 has 46 MA's), (8, 51537), (20, 51684), (22, 51723), (28, 51798), (34, 51891), (35, 51897), (47, 52047), (49, 52062), (50, 52071), (52, 52197), (53, 52257), (54, 52266), (55, 52308), (56, 52323), (57, 52326), (59, 52344), (60, 52362),

Gene: Kboogie\_104 Start: 49814, Stop: 50728, Start Num: 5

Candidate Starts for Kboogie\_104:

(Start: 5 @49814 has 46 MA's), (Start: 7 @49829 has 2 MA's), (16, 50009), (29, 50159), (35, 50255), (38, 50336), (50, 50429), (52, 50555), (53, 50615), (54, 50624), (55, 50666), (57, 50684), (59, 50702),

Gene: Khaleesi\_99 Start: 50726, Stop: 51664, Start Num: 2

Candidate Starts for Khaleesi\_99:

(Start: 1 @50693 has 5 MA's), (Start: 2 @50726 has 27 MA's), (17, 50939), (18, 50942), (26, 51074), (37, 51257), (39, 51293), (49, 51356), (50, 51365), (52, 51491), (54, 51560), (55, 51602), (56, 51617), (57, 51620), (59, 51638), (60, 51656),

Gene: LRRHood\_95 Start: 50351, Stop: 51268, Start Num: 5

Candidate Starts for LRRHood\_95:

(Start: 5 @50351 has 46 MA's), (Start: 7 @50366 has 2 MA's), (16, 50546), (29, 50696), (35, 50792), (38, 50873), (50, 50966), (52, 51092), (53, 51152), (54, 51161), (57, 51221), (59, 51239),

Gene: Lee7\_98 Start: 51361, Stop: 52302, Start Num: 2

Candidate Starts for Lee7\_98:

(Start: 1 @51328 has 5 MA's), (Start: 2 @51361 has 27 MA's), (17, 51574), (18, 51577), (26, 51709), (37, 51892), (39, 51928), (52, 52126), (54, 52195), (57, 52255), (59, 52273),

Gene: Lethe\_99 Start: 50809, Stop: 51741, Start Num: 4

Candidate Starts for Lethe\_99:

(Start: 4 @50809 has 8 MA's), (10, 50923), (22, 51088), (24, 51130), (36, 51274), (37, 51334), (46, 51403), (47, 51418), (48, 51421), (52, 51568), (53, 51628), (54, 51637), (55, 51679), (56, 51694), (57, 51697), (59, 51715),

Gene: LinStu\_100 Start: 50946, Stop: 51878, Start Num: 3

Candidate Starts for LinStu\_100:

(Start: 3 @50946 has 10 MA's), (Start: 5 @50952 has 46 MA's), (8, 51042), (20, 51189), (22, 51228), (28, 51303), (34, 51396), (35, 51402), (47, 51552), (49, 51567), (50, 51576), (52, 51702), (53, 51762), (54, 51771), (57, 51831), (59, 51849),

Gene: Littleton\_100 Start: 50185, Stop: 51117, Start Num: 4

Candidate Starts for Littleton\_100:

(Start: 4 @50185 has 8 MA's), (10, 50299), (22, 50464), (24, 50506), (36, 50650), (37, 50710), (46, 50779), (47, 50794), (48, 50797), (52, 50944), (53, 51004), (54, 51013), (55, 51055), (56, 51070), (57, 51073), (59, 51091), (60, 51109),

Gene: Loanshark\_100 Start: 50949, Stop: 51887, Start Num: 2

Candidate Starts for Loanshark\_100:

(Start: 1 @50916 has 5 MA's), (Start: 2 @50949 has 27 MA's), (17, 51162), (18, 51165), (26, 51297), (37, 51480), (39, 51516), (49, 51579), (50, 51588), (52, 51714), (54, 51783), (55, 51825), (56, 51840), (57, 51843), (59, 51861), (60, 51879),

Gene: LookingGlass\_101 Start: 50881, Stop: 51810, Start Num: 3

Candidate Starts for LookingGlass\_101:

(Start: 3 @50881 has 10 MA's), (Start: 5 @50887 has 46 MA's), (8, 50977), (20, 51124), (22, 51163), (28, 51238), (34, 51331), (35, 51337), (47, 51487), (49, 51502), (50, 51511), (52, 51637), (53, 51697),

(54, 51706), (55, 51748), (56, 51763), (57, 51766), (59, 51784), (60, 51802),

Gene: Lukilu\_91 Start: 50470, Stop: 51399, Start Num: 3

Candidate Starts for Lukilu\_91:

(Start: 3 @50470 has 10 MA's), (11, 50596), (12, 50599), (13, 50602), (17, 50680), (30, 50842), (37, 50989), (49, 51088), (50, 51097), (52, 51223), (54, 51292), (55, 51334), (57, 51352), (59, 51370),

Gene: Maby2021\_100 Start: 50824, Stop: 51765, Start Num: 2

Candidate Starts for Maby2021\_100:

(Start: 1 @50791 has 5 MA's), (Start: 2 @50824 has 27 MA's), (17, 51037), (18, 51040), (26, 51172), (37, 51355), (39, 51391), (52, 51589), (53, 51649), (54, 51658), (57, 51718), (59, 51736),

Gene: Mangeria\_100 Start: 50917, Stop: 51834, Start Num: 5

Candidate Starts for Mangeria\_100:

(Start: 5 @50917 has 46 MA's), (Start: 7 @50932 has 2 MA's), (16, 51112), (29, 51262), (35, 51358), (38, 51439), (50, 51532), (52, 51658), (53, 51718), (54, 51727), (57, 51787), (59, 51805),

Gene: McGee\_102 Start: 49449, Stop: 50366, Start Num: 5

Candidate Starts for McGee\_102:

(Start: 5 @49449 has 46 MA's), (Start: 7 @49464 has 2 MA's), (16, 49644), (29, 49794), (35, 49890), (38, 49971), (50, 50064), (52, 50190), (53, 50250), (54, 50259), (57, 50319), (59, 50337),

Gene: McWolfish\_98 Start: 50609, Stop: 51547, Start Num: 2

Candidate Starts for McWolfish\_98:

(Start: 1 @50576 has 5 MA's), (Start: 2 @50609 has 27 MA's), (17, 50822), (18, 50825), (26, 50957), (37, 51140), (39, 51176), (49, 51239), (50, 51248), (52, 51374), (54, 51443), (55, 51485), (56, 51500), (57, 51503), (59, 51521), (60, 51539),

Gene: Megamind\_99 Start: 50516, Stop: 51430, Start Num: 5

Candidate Starts for Megamind\_99:

(Start: 5 @50516 has 46 MA's), (Start: 7 @50531 has 2 MA's), (8, 50606), (16, 50711), (27, 50852), (29, 50861), (33, 50927), (35, 50957), (40, 51065), (44, 51086), (50, 51131), (52, 51257), (54, 51326), (55, 51368), (56, 51383), (57, 51386), (59, 51404), (60, 51422),

Gene: MikeLiesIn\_101 Start: 50863, Stop: 51777, Start Num: 5

Candidate Starts for MikeLiesIn\_101:

(Start: 5 @50863 has 46 MA's), (Start: 7 @50878 has 2 MA's), (8, 50953), (16, 51058), (27, 51199), (29, 51208), (33, 51274), (35, 51304), (40, 51412), (44, 51433), (50, 51478), (52, 51604), (54, 51673), (55, 51715), (56, 51730), (57, 51733), (59, 51751), (60, 51769),

Gene: Mikro\_98 Start: 52079, Stop: 53005, Start Num: 6

Candidate Starts for Mikro\_98:

(Start: 6 @52079 has 5 MA's), (9, 52169), (12, 52202), (19, 52298), (21, 52316), (23, 52352), (25, 52394), (31, 52460), (36, 52538), (41, 52643), (47, 52682), (52, 52832), (54, 52901), (55, 52943), (56, 52958), (57, 52961), (59, 52979), (60, 52997),

Gene: MoMoMixon\_101 Start: 50339, Stop: 51253, Start Num: 5

Candidate Starts for MoMoMixon\_101:

(Start: 5 @50339 has 46 MA's), (Start: 7 @50354 has 2 MA's), (8, 50429), (16, 50534), (27, 50675), (29, 50684), (33, 50750), (35, 50780), (40, 50888), (44, 50909), (50, 50954), (52, 51080), (54, 51149), (55, 51191), (56, 51206), (57, 51209), (59, 51227), (60, 51245),

Gene: Moby\_91 Start: 46853, Stop: 47794, Start Num: 2

Candidate Starts for Moby\_91:

(Start: 1 @46820 has 5 MA's), (Start: 2 @46853 has 27 MA's), (17, 47066), (18, 47069), (26, 47201), (37, 47384), (39, 47420), (52, 47618), (53, 47678), (54, 47687), (57, 47747), (59, 47765),

Gene: Moiqah\_91 Start: 46853, Stop: 47794, Start Num: 2

Candidate Starts for Moiqah\_91:

(Start: 1 @46820 has 5 MA's), (Start: 2 @46853 has 27 MA's), (17, 47066), (18, 47069), (26, 47201), (37, 47384), (39, 47420), (52, 47618), (53, 47678), (54, 47687), (57, 47747), (59, 47765),

Gene: Morizzled23\_100 Start: 49758, Stop: 50657, Start Num: 7

Candidate Starts for Morizzled23\_100:

(Start: 5 @49743 has 46 MA's), (Start: 7 @49758 has 2 MA's), (8, 49833), (16, 49938), (27, 50079), (29, 50088), (33, 50154), (35, 50184), (40, 50292), (44, 50313), (50, 50358), (52, 50484), (53, 50544), (54, 50553), (55, 50595), (56, 50610), (57, 50613), (59, 50631), (60, 50649),

Gene: Nappy\_103 Start: 51778, Stop: 52695, Start Num: 5

Candidate Starts for Nappy\_103:

(Start: 5 @51778 has 46 MA's), (Start: 7 @51793 has 2 MA's), (8, 51868), (16, 51973), (27, 52114), (29, 52123), (33, 52189), (35, 52219), (40, 52327), (44, 52348), (50, 52393), (52, 52519), (54, 52588), (55, 52630), (57, 52648), (59, 52666),

Gene: Naval22\_105 Start: 52334, Stop: 53275, Start Num: 2

Candidate Starts for Naval22\_105:

(Start: 1 @52301 has 5 MA's), (Start: 2 @52334 has 27 MA's), (17, 52547), (18, 52550), (26, 52682), (37, 52865), (39, 52901), (52, 53099), (53, 53159), (54, 53168), (55, 53210), (57, 53228), (59, 53246),

Gene: NedWong\_101 Start: 50850, Stop: 51764, Start Num: 5

Candidate Starts for NedWong\_101:

(Start: 5 @50850 has 46 MA's), (Start: 7 @50865 has 2 MA's), (8, 50940), (16, 51045), (27, 51186), (29, 51195), (33, 51261), (35, 51291), (40, 51399), (44, 51420), (50, 51465), (52, 51591), (54, 51660), (55, 51702), (56, 51717), (57, 51720), (59, 51738), (60, 51756),

Gene: Nidhogg\_101 Start: 50589, Stop: 51506, Start Num: 5

Candidate Starts for Nidhogg\_101:

(Start: 5 @50589 has 46 MA's), (Start: 7 @50604 has 2 MA's), (16, 50784), (29, 50934), (35, 51030), (38, 51111), (50, 51204), (52, 51330), (53, 51390), (54, 51399), (57, 51459), (59, 51477),

Gene: Norm\_101 Start: 51755, Stop: 52693, Start Num: 2

Candidate Starts for Norm\_101:

(Start: 1 @51722 has 5 MA's), (Start: 2 @51755 has 27 MA's), (17, 51968), (18, 51971), (26, 52103), (37, 52286), (39, 52322), (52, 52520), (54, 52589), (55, 52631), (56, 52646), (57, 52649), (59, 52667), (60, 52685),

Gene: NuevoMundo\_106 Start: 53108, Stop: 54049, Start Num: 2

Candidate Starts for NuevoMundo\_106:

(Start: 1 @53075 has 5 MA's), (Start: 2 @53108 has 27 MA's), (17, 53321), (18, 53324), (26, 53456), (37, 53639), (39, 53675), (52, 53873), (54, 53942), (57, 54002), (59, 54020),

Gene: ParkTD\_101 Start: 50846, Stop: 51760, Start Num: 5

Candidate Starts for ParkTD\_101:

(Start: 5 @50846 has 46 MA's), (Start: 7 @50861 has 2 MA's), (8, 50936), (16, 51041), (27, 51182), (29, 51191), (33, 51257), (35, 51287), (40, 51395), (44, 51416), (50, 51461), (52, 51587), (54, 51656), (55, 51698), (56, 51713), (57, 51716), (59, 51734), (60, 51752),

Gene: Phox\_97 Start: 51129, Stop: 52046, Start Num: 5

Candidate Starts for Phox\_97:

(Start: 5 @51129 has 46 MA's), (Start: 7 @51144 has 2 MA's), (16, 51324), (29, 51474), (35, 51570), (38, 51651), (50, 51744), (52, 51870), (53, 51930), (54, 51939), (57, 51999), (59, 52017),

Gene: Pier\_104 Start: 51482, Stop: 52408, Start Num: 3

Candidate Starts for Pier\_104:

(Start: 3 @51482 has 10 MA's), (11, 51608), (12, 51611), (13, 51614), (17, 51692), (30, 51854), (37, 52001), (49, 52100), (50, 52109), (52, 52235), (53, 52295), (54, 52304), (55, 52346), (56, 52361), (57, 52364), (59, 52382),

Gene: Pinkcreek\_91 Start: 47918, Stop: 48859, Start Num: 2

Candidate Starts for Pinkcreek\_91:

(Start: 1 @47885 has 5 MA's), (Start: 2 @47918 has 27 MA's), (17, 48131), (18, 48134), (26, 48266), (37, 48449), (39, 48485), (49, 48548), (50, 48557), (52, 48683), (54, 48752), (57, 48812), (59, 48830),

Gene: Pio\_104 Start: 52718, Stop: 53656, Start Num: 2

Candidate Starts for Pio\_104:

(Start: 1 @52685 has 5 MA's), (Start: 2 @52718 has 27 MA's), (17, 52931), (18, 52934), (26, 53066), (37, 53249), (39, 53285), (52, 53483), (54, 53552), (55, 53594), (57, 53612), (59, 53630), (60, 53648),

Gene: Pleione\_103 Start: 50961, Stop: 51932, Start Num: 1

Candidate Starts for Pleione\_103:

(Start: 1 @50961 has 5 MA's), (Start: 2 @50994 has 27 MA's), (17, 51207), (18, 51210), (26, 51342), (37, 51525), (39, 51561), (52, 51759), (53, 51819), (54, 51828), (56, 51885), (57, 51888), (59, 51906), (60, 51924),

Gene: Primadonna\_94 Start: 49762, Stop: 50664, Start Num: 7

Candidate Starts for Primadonna\_94:

(Start: 5 @49747 has 46 MA's), (Start: 7 @49762 has 2 MA's), (16, 49942), (29, 50092), (35, 50188), (38, 50269), (50, 50362), (52, 50488), (53, 50548), (54, 50557), (57, 50617), (59, 50635),

Gene: PurduePete\_100 Start: 51247, Stop: 52185, Start Num: 2

Candidate Starts for PurduePete\_100:

(Start: 1 @51214 has 5 MA's), (Start: 2 @51247 has 27 MA's), (17, 51460), (18, 51463), (26, 51595), (37, 51778), (39, 51814), (49, 51877), (50, 51886), (52, 52012), (54, 52081), (55, 52123), (56, 52138), (57, 52141), (59, 52159), (60, 52177),

Gene: Quasimodo\_101 Start: 50807, Stop: 51724, Start Num: 5

Candidate Starts for Quasimodo\_101:

(Start: 5 @50807 has 46 MA's), (Start: 7 @50822 has 2 MA's), (16, 51002), (29, 51152), (35, 51248), (38, 51329), (50, 51422), (52, 51548), (53, 51608), (54, 51617), (57, 51677), (59, 51695),

Gene: RoMag\_95 Start: 50053, Stop: 50979, Start Num: 6

Candidate Starts for RoMag\_95:

(Start: 6 @50053 has 5 MA's), (9, 50143), (12, 50176), (19, 50272), (21, 50290), (23, 50326), (25, 50368), (31, 50434), (36, 50512), (41, 50617), (47, 50656), (51, 50755), (52, 50806), (53, 50866), (54, 50875), (55, 50917), (56, 50932), (57, 50935), (59, 50953), (60, 50971),

Gene: Ronan\_94 Start: 47988, Stop: 48929, Start Num: 2

Candidate Starts for Ronan\_94:

(Start: 1 @47955 has 5 MA's), (Start: 2 @47988 has 27 MA's), (17, 48201), (18, 48204), (26, 48336), (37, 48519), (51, 48702), (52, 48753), (53, 48813), (54, 48822), (57, 48882), (59, 48900),

Gene: Roots515\_99 Start: 51043, Stop: 51957, Start Num: 5

Candidate Starts for Roots515\_99:

(Start: 5 @51043 has 46 MA's), (Start: 7 @51058 has 2 MA's), (8, 51133), (16, 51238), (27, 51379), (29, 51388), (33, 51454), (35, 51484), (40, 51592), (44, 51613), (50, 51658), (52, 51784), (54, 51853), (55, 51895), (56, 51910), (57, 51913), (59, 51931), (60, 51949),

Gene: SVoro\_98 Start: 51197, Stop: 52135, Start Num: 2

Candidate Starts for SVoro\_98:

(Start: 1 @51164 has 5 MA's), (Start: 2 @51197 has 27 MA's), (17, 51410), (18, 51413), (26, 51545), (37, 51728), (39, 51764), (49, 51827), (50, 51836), (52, 51962), (54, 52031), (55, 52073), (56, 52088), (57, 52091), (59, 52109), (60, 52127),

Gene: Salacia\_104 Start: 51177, Stop: 52106, Start Num: 6

Candidate Starts for Salacia\_104:

(Start: 6 @51177 has 5 MA's), (9, 51267), (12, 51300), (19, 51396), (21, 51414), (23, 51450), (31, 51558), (37, 51696), (49, 51795), (50, 51804), (52, 51930), (53, 51990), (54, 51999), (57, 52059), (59, 52077),

Gene: Sauce\_101 Start: 50027, Stop: 50968, Start Num: 2

Candidate Starts for Sauce\_101:

(Start: 1 @49994 has 5 MA's), (Start: 2 @50027 has 27 MA's), (17, 50240), (18, 50243), (26, 50375), (37, 50558), (39, 50594), (52, 50792), (53, 50852), (54, 50861), (57, 50921), (59, 50939),

Gene: ScoobyDoobyDoo\_93 Start: 48138, Stop: 49049, Start Num: 3

Candidate Starts for ScoobyDoobyDoo\_93:

(Start: 3 @48138 has 10 MA's), (11, 48264), (12, 48267), (13, 48270), (15, 48312), (17, 48348), (30, 48510), (37, 48657), (43, 48717), (47, 48741), (51, 48840), (52, 48891), (53, 48951), (54, 48960), (55, 49002), (56, 49017), (58, 49035),

Gene: Sebata\_102 Start: 51505, Stop: 52437, Start Num: 3

Candidate Starts for Sebata\_102:

(Start: 3 @51505 has 10 MA's), (Start: 5 @51511 has 46 MA's), (8, 51601), (20, 51748), (22, 51787), (28, 51862), (34, 51955), (35, 51961), (47, 52111), (49, 52126), (50, 52135), (52, 52261), (53, 52321), (54, 52330), (57, 52390), (59, 52408),

Gene: Shaqnato\_93 Start: 48902, Stop: 49843, Start Num: 2

Candidate Starts for Shaqnato\_93:

(Start: 1 @48869 has 5 MA's), (Start: 2 @48902 has 27 MA's), (17, 49115), (18, 49118), (26, 49250), (37, 49433), (39, 49469), (52, 49667), (53, 49727), (54, 49736), (57, 49796), (59, 49814),

Gene: Shifa\_89 Start: 48902, Stop: 49816, Start Num: 5

Candidate Starts for Shifa\_89:

(Start: 5 @48902 has 46 MA's), (Start: 7 @48917 has 2 MA's), (8, 48992), (16, 49097), (27, 49238), (29, 49247), (33, 49313), (35, 49343), (40, 49451), (44, 49472), (50, 49517), (52, 49643), (53, 49703), (54, 49712), (55, 49754), (56, 49769), (57, 49772), (59, 49790),

Gene: Shrimp\_100 Start: 50854, Stop: 51768, Start Num: 5

Candidate Starts for Shrimp\_100:

(Start: 5 @50854 has 46 MA's), (Start: 7 @50869 has 2 MA's), (8, 50944), (16, 51049), (27, 51190), (29, 51199), (33, 51265), (35, 51295), (40, 51403), (44, 51424), (50, 51469), (52, 51595), (54, 51664),

(55, 51706), (56, 51721), (57, 51724), (59, 51742), (60, 51760),

Gene: Sprinklers\_96 Start: 49399, Stop: 50340, Start Num: 2

Candidate Starts for Sprinklers\_96:

(Start: 1 @49366 has 5 MA's), (Start: 2 @49399 has 27 MA's), (17, 49612), (18, 49615), (26, 49747), (37, 49930), (39, 49966), (52, 50164), (53, 50224), (54, 50233), (57, 50293), (59, 50311),

Gene: Spud\_100 Start: 50912, Stop: 51853, Start Num: 2

Candidate Starts for Spud\_100:

(Start: 1 @50879 has 5 MA's), (Start: 2 @50912 has 27 MA's), (17, 51125), (18, 51128), (26, 51260), (37, 51443), (39, 51479), (49, 51542), (50, 51551), (52, 51677), (53, 51737), (54, 51746), (55, 51788), (56, 51803), (57, 51806), (59, 51824),

Gene: SrishMeg2525\_99 Start: 50957, Stop: 51874, Start Num: 5

Candidate Starts for SrishMeg2525\_99:

(Start: 5 @50957 has 46 MA's), (Start: 7 @50972 has 2 MA's), (8, 51047), (16, 51152), (27, 51293), (29, 51302), (33, 51368), (35, 51398), (40, 51506), (44, 51527), (50, 51572), (52, 51698), (53, 51758), (54, 51767), (57, 51827), (59, 51845),

Gene: StephanieG\_99 Start: 51748, Stop: 52677, Start Num: 3

Candidate Starts for StephanieG\_99:

(Start: 3 @51748 has 10 MA's), (Start: 5 @51754 has 46 MA's), (8, 51844), (20, 51991), (22, 52030), (28, 52105), (34, 52198), (35, 52204), (47, 52354), (49, 52369), (50, 52378), (52, 52504), (53, 52564), (54, 52573), (55, 52615), (56, 52630), (57, 52633), (59, 52651), (60, 52669),

Gene: StubbySaigey\_103 Start: 49553, Stop: 50470, Start Num: 5

Candidate Starts for StubbySaigey\_103:

(Start: 5 @49553 has 46 MA's), (Start: 7 @49568 has 2 MA's), (16, 49748), (29, 49898), (33, 49964), (35, 49994), (40, 50102), (44, 50123), (50, 50168), (52, 50294), (53, 50354), (54, 50363), (57, 50423), (59, 50441),

Gene: Trinitium\_97 Start: 49304, Stop: 50236, Start Num: 4

Candidate Starts for Trinitium\_97:

(Start: 4 @49304 has 8 MA's), (10, 49418), (22, 49583), (24, 49625), (36, 49769), (37, 49829), (46, 49898), (47, 49913), (48, 49916), (52, 50063), (53, 50123), (54, 50132), (55, 50174), (56, 50189), (57, 50192), (59, 50210),

Gene: Turret\_95 Start: 48743, Stop: 49675, Start Num: 4

Candidate Starts for Turret\_95:

(Start: 4 @48743 has 8 MA's), (10, 48857), (22, 49022), (24, 49064), (36, 49208), (37, 49268), (46, 49337), (47, 49352), (48, 49355), (52, 49502), (53, 49562), (54, 49571), (55, 49613), (56, 49628), (57, 49631), (59, 49649), (60, 49667),

Gene: Wally\_99 Start: 49393, Stop: 50310, Start Num: 5

Candidate Starts for Wally\_99:

(Start: 5 @49393 has 46 MA's), (Start: 7 @49408 has 2 MA's), (16, 49588), (29, 49738), (35, 49834), (38, 49915), (50, 50008), (52, 50134), (53, 50194), (54, 50203), (57, 50263), (59, 50281),

Gene: Willis\_101 Start: 50745, Stop: 51659, Start Num: 5

Candidate Starts for Willis\_101:

(Start: 5 @50745 has 46 MA's), (Start: 7 @50760 has 2 MA's), (8, 50835), (16, 50940), (27, 51081), (29, 51090), (33, 51156), (35, 51186), (40, 51294), (44, 51315), (50, 51360), (52, 51486), (53, 51546), (54, 51555), (55, 51597), (56, 51612), (57, 51615), (59, 51633), (60, 51651),

Gene: Yassified\_97 Start: 49446, Stop: 50387, Start Num: 2

Candidate Starts for Yassified\_97:

(Start: 1 @49413 has 5 MA's), (Start: 2 @49446 has 27 MA's), (17, 49659), (18, 49662), (26, 49794), (37, 49977), (39, 50013), (52, 50211), (53, 50271), (54, 50280), (56, 50337), (57, 50340), (59, 50358),

Gene: YemiJoy2021\_101 Start: 50847, Stop: 51761, Start Num: 5

Candidate Starts for YemiJoy2021\_101:

(Start: 5 @50847 has 46 MA's), (Start: 7 @50862 has 2 MA's), (8, 50937), (16, 51042), (27, 51183), (29, 51192), (33, 51258), (35, 51288), (40, 51396), (44, 51417), (50, 51462), (52, 51588), (54, 51657), (55, 51699), (56, 51714), (57, 51717), (59, 51735), (60, 51753),

Gene: YoungMoneyMata\_101 Start: 50016, Stop: 50933, Start Num: 5

Candidate Starts for YoungMoneyMata\_101:

(Start: 5 @50016 has 46 MA's), (Start: 7 @50031 has 2 MA's), (16, 50211), (29, 50361), (35, 50457), (38, 50538), (50, 50631), (52, 50757), (53, 50817), (54, 50826), (57, 50886), (59, 50904),

Gene: Zalkecks\_101 Start: 50550, Stop: 51452, Start Num: 7

Candidate Starts for Zalkecks\_101:

(Start: 5 @50535 has 46 MA's), (Start: 7 @50550 has 2 MA's), (8, 50625), (16, 50730), (27, 50871), (29, 50880), (33, 50946), (35, 50976), (40, 51084), (44, 51105), (50, 51150), (52, 51276), (53, 51336), (54, 51345), (57, 51405), (59, 51423),

Gene: Zeenon\_102 Start: 50597, Stop: 51535, Start Num: 2

Candidate Starts for Zeenon\_102:

(Start: 1 @50564 has 5 MA's), (Start: 2 @50597 has 27 MA's), (17, 50810), (18, 50813), (26, 50945), (37, 51128), (39, 51164), (52, 51362), (54, 51431), (55, 51473), (57, 51491), (59, 51509), (60, 51527),

Gene: ZygoTaiga\_99 Start: 51751, Stop: 52689, Start Num: 2

Candidate Starts for ZygoTaiga\_99:

(Start: 1 @51718 has 5 MA's), (Start: 2 @51751 has 27 MA's), (17, 51964), (18, 51967), (26, 52099), (37, 52282), (39, 52318), (52, 52516), (54, 52585), (55, 52627), (56, 52642), (57, 52645), (59, 52663), (60, 52681),