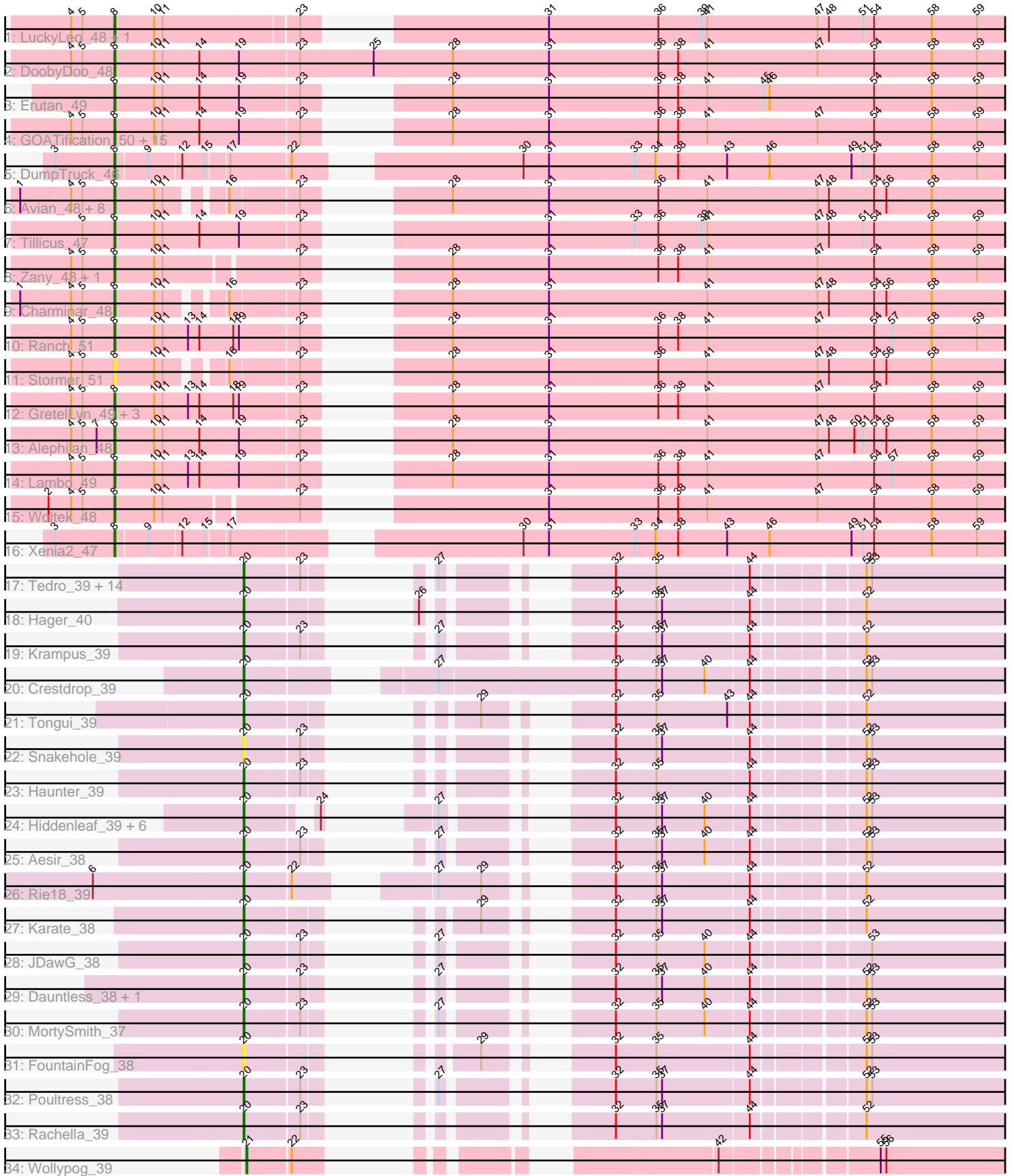


Pham 311495



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 311495 Report

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

Pham number 311495 has 83 members, 9 are drafts.

Phages represented in each track:

- Track 1 : LuckyLeo\_48, Apeppi\_46
- Track 2 : DoobyDoo\_48
- Track 3 : Erutan\_49
- Track 4 : GOATification\_50, DaviePasture\_50, Jalebi\_49, NorManre\_52, ParvusTarda\_49, Fulcrum\_50, Yikes\_51, Pywacket\_48, Mima20\_49, BirthdayBoy\_52, Gibbin\_51, Rukungu\_52, Patos\_52, Sampudon\_50, MoiGyank\_53, LavAbarElk\_49
- Track 5 : DumpTruck\_46
- Track 6 : Avian\_48, Riduram\_48, Rumi\_50, Astralis\_49, Alyssamiracle\_52, NovaSharks\_51, Jamemuya19\_49, RazorC\_49, Genamy16\_52
- Track 7 : Tillicus\_47
- Track 8 : Zany\_48, Rota\_48
- Track 9 : Charminar\_48
- Track 10 : Ranch\_51
- Track 11 : Stormer\_51
- Track 12 : GretelLyn\_49, OtterstedtS21\_49, Sadboi\_50, Lila22\_50
- Track 13 : Alephilan\_48
- Track 14 : Lambo\_49
- Track 15 : Wojtek\_48
- Track 16 : Xenia2\_47
- Track 17 : Tedro\_39, Artiphact\_39, Cybele\_39, CoolCookie\_39, PhunaPhoke\_39, OhDear\_39, NarutoRun\_39, Pharpay\_39, AnnaSerena\_39, Anakin\_39, Neptune\_39, Gilda\_39, OverHedge\_39, Tiggy93\_39, Potty\_39
- Track 18 : Hager\_40
- Track 19 : Krampus\_39
- Track 20 : Crestdrop\_39
- Track 21 : Tongui\_39
- Track 22 : Snakehole\_39
- Track 23 : Haunter\_39
- Track 24 : Hiddenleaf\_39, Annapurna\_39, JingleBells\_39, FreddieHg\_39, SilentWarrior\_39, Chivey\_39, DannyDe\_39
- Track 25 : Aesir\_38
- Track 26 : Rie18\_39
- Track 27 : Karate\_38
- Track 28 : JDawG\_38
- Track 29 : Dauntless\_38, Erudite\_38
- Track 30 : MortySmith\_37

- Track 31 : FountainFog\_38
- Track 32 : Poultruss\_38
- Track 33 : Rachella\_39
- Track 34 : Wollypog\_39

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

The start number called the most often in the published annotations is 8, it was called in 39 of the 74 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Alephilan\_48, Alyssamiracle\_52, Apeppi\_46, Astralis\_49, Avian\_48, BirthdayBoy\_52, Charminar\_48, DaviePasture\_50, DoobyDoo\_48, DumpTruck\_46, Erutan\_49, Fulcrum\_50, GOATification\_50, Genamy16\_52, Gibbin\_51, GretelLyn\_49, Jalebi\_49, Jamemuya19\_49, Lambo\_49, LavAbarElk\_49, Lila22\_50, LuckyLeo\_48, Mima20\_49, MoiGyank\_53, NorManre\_52, NovaSharks\_51, OtterstedtS21\_49, ParvusTarda\_49, Patos\_52, Pywacket\_48, Ranch\_51, RazorC\_49, Riduram\_48, Rota\_48, Rukungu\_52, Rumi\_50, Sadboi\_50, Sampudon\_50, Stormer\_51, Tillicus\_47, Wojtek\_48, Xenia2\_47, Yikes\_51, Zany\_48,

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

- 

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

- Aesir\_38, Anakin\_39, AnnaSerena\_39, Annapurna\_39, Artiphact\_39, Chivey\_39, CoolCookie\_39, Crestdrop\_39, Cybele\_39, DannyDe\_39, Dauntless\_38, Erudite\_38, FountainFog\_38, FreddieHg\_39, Gilda\_39, Hager\_40, Haunter\_39, Hiddenleaf\_39, JDawG\_38, JingleBells\_39, Karate\_38, Krampus\_39, MortySmith\_37, NarutoRun\_39, Neptune\_39, OhDear\_39, OverHedge\_39, Pharpay\_39, PhunaPhoke\_39, Potty\_39, Poultruss\_38, Rachella\_39, Rie18\_39, SilentWarrior\_39, Snakehole\_39, Tedro\_39, Tiggy93\_39, Tongui\_39, Wollypog\_39,

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

Start 8:

- Found in 44 of 83 ( 53.0% ) of genes in pham
- Manual Annotations of this start: 39 of 74
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alephilan\_48 (DV), Alyssamiracle\_52 (DV), Apeppi\_46 (DV), Astralis\_49 (DV), Avian\_48 (DV), BirthdayBoy\_52 (DV), Charminar\_48 (DV), DaviePasture\_50 (DV), DoobyDoo\_48 (DV), DumpTruck\_46 (DV), Erutan\_49 (DV), Fulcrum\_50 (DV), GOATification\_50 (DV), Genamy16\_52 (DV), Gibbin\_51 (DV), GretelLyn\_49 (DV), Jalebi\_49 (DV), Jamemuya19\_49 (DV), Lambo\_49 (DV), LavAbarElk\_49 (DV), Lila22\_50 (DV), LuckyLeo\_48 (DV), Mima20\_49 (DV), MoiGyank\_53 (DV), NorManre\_52 (DV), NovaSharks\_51 (DV), OtterstedtS21\_49 (DV), ParvusTarda\_49 (DV), Patos\_52 (DV), Pywacket\_48 (DV), Ranch\_51 (DV), RazorC\_49 (DV), Riduram\_48 (DV), Rota\_48 (DV), Rukungu\_52 (DV), Rumi\_50 (DV), Sadboi\_50 (DV), Sampudon\_50 (DV), Stormer\_51 (DV), Tillicus\_47 (DV), Wojtek\_48 (DV), Xenia2\_47 (DV), Yikes\_51 (DV), Zany\_48 (DV),

#### Start 20:

- Found in 38 of 83 ( 45.8% ) of genes in pham
- Manual Annotations of this start: 34 of 74
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aesir\_38 (EF), Anakin\_39 (EF), AnnaSerena\_39 (EF), Annapurna\_39 (EF), Artiphact\_39 (EF), Chivey\_39 (EF), CoolCookie\_39 (EF), Crestdrop\_39 (EF), Cybele\_39 (EF), DannyDe\_39 (EF), Dauntless\_38 (EF), Erudite\_38 (EF), FountainFog\_38 (EF), FreddieHg\_39 (EF), Gilda\_39 (EF), Hager\_40 (EF), Haunter\_39 (EF), Hiddenleaf\_39 (EF), JDawG\_38 (EF), JingleBells\_39 (EF), Karate\_38 (EF), Krampus\_39 (EF), MortySmith\_37 (EF), NarutoRun\_39 (EF), Neptune\_39 (EF), OhDear\_39 (EF), OverHedge\_39 (EF), Pharpay\_39 (EF), PhunaPhoke\_39 (EF), Potty\_39 (EF), Poultruss\_38 (EF), Rachella\_39 (EF), Rie18\_39 (EF), SilentWarrior\_39 (EF), Snakehole\_39 (EF), Tedro\_39 (EF), Tiggy93\_39 (EF), Tongui\_39 (EF),

#### Start 21:

- Found in 1 of 83 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 74
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Wollypog\_39 (singleton),

#### Summary by clusters:

There are 3 clusters represented in this pham: DV, singleton, EF,

Info for manual annotations of cluster DV:

- Start number 8 was manually annotated 39 times for cluster DV.

Info for manual annotations of cluster EF:

- Start number 20 was manually annotated 34 times for cluster EF.

#### Gene Information:

Gene: Aesir\_38 Start: 25004, Stop: 25594, Start Num: 20

Candidate Starts for Aesir\_38:

(Start: 20 @25004 has 34 MA's), (23, 25058), (27, 25094), (32, 25208), (35, 25250), (37, 25256), (40, 25301), (44, 25346), (52, 25448), (53, 25454),

Gene: Alephilan\_48 Start: 36707, Stop: 37567, Start Num: 8

Candidate Starts for Alephilan\_48:

(4, 36662), (5, 36674), (7, 36689), (Start: 8 @36707 has 39 MA's), (10, 36749), (11, 36758), (14, 36797), (19, 36839), (23, 36899), (28, 36983), (31, 37085), (41, 37250), (47, 37367), (48, 37379), (50, 37406), (51, 37415), (54, 37427), (56, 37439), (58, 37487), (59, 37535),

Gene: Alyssamiracle\_52 Start: 36033, Stop: 36866, Start Num: 8

Candidate Starts for Alyssamiracle\_52:

(1, 35934), (4, 35988), (5, 36000), (Start: 8 @36033 has 39 MA's), (10, 36075), (11, 36084), (16, 36129), (23, 36198), (28, 36282), (31, 36384), (36, 36498), (41, 36549), (47, 36666), (48, 36678), (54, 36726), (56, 36738), (58, 36786),

Gene: Anakin\_39 Start: 25324, Stop: 25914, Start Num: 20

Candidate Starts for Anakin\_39:

(Start: 20 @25324 has 34 MA's), (23, 25378), (27, 25414), (32, 25528), (35, 25570), (44, 25666), (52, 25768), (53, 25774),

Gene: AnnaSerena\_39 Start: 25359, Stop: 25949, Start Num: 20

Candidate Starts for AnnaSerena\_39:

(Start: 20 @25359 has 34 MA's), (23, 25413), (27, 25449), (32, 25563), (35, 25605), (44, 25701), (52, 25803), (53, 25809),

Gene: Annapurna\_39 Start: 24633, Stop: 25223, Start Num: 20

Candidate Starts for Annapurna\_39:

(Start: 20 @24633 has 34 MA's), (24, 24687), (27, 24723), (32, 24837), (35, 24879), (37, 24885), (40, 24930), (44, 24975), (52, 25077), (53, 25083),

Gene: Apeppi\_46 Start: 36209, Stop: 37057, Start Num: 8

Candidate Starts for Apeppi\_46:

(4, 36164), (5, 36176), (Start: 8 @36209 has 39 MA's), (10, 36251), (11, 36260), (23, 36392), (31, 36578), (36, 36692), (39, 36737), (41, 36743), (47, 36860), (48, 36872), (51, 36908), (54, 36920), (58, 36980), (59, 37028),

Gene: Artiphact\_39 Start: 25348, Stop: 25938, Start Num: 20

Candidate Starts for Artiphact\_39:

(Start: 20 @25348 has 34 MA's), (23, 25402), (27, 25438), (32, 25552), (35, 25594), (44, 25690), (52, 25792), (53, 25798),

Gene: Astralis\_49 Start: 35611, Stop: 36444, Start Num: 8

Candidate Starts for Astralis\_49:

(1, 35512), (4, 35566), (5, 35578), (Start: 8 @35611 has 39 MA's), (10, 35653), (11, 35662), (16, 35707), (23, 35776), (28, 35860), (31, 35962), (36, 36076), (41, 36127), (47, 36244), (48, 36256), (54, 36304), (56, 36316), (58, 36364),

Gene: Avian\_48 Start: 35761, Stop: 36594, Start Num: 8

Candidate Starts for Avian\_48:

(1, 35662), (4, 35716), (5, 35728), (Start: 8 @35761 has 39 MA's), (10, 35803), (11, 35812), (16, 35857), (23, 35926), (28, 36010), (31, 36112), (36, 36226), (41, 36277), (47, 36394), (48, 36406), (54, 36454), (56, 36466), (58, 36514),

Gene: BirthdayBoy\_52 Start: 37410, Stop: 38270, Start Num: 8

Candidate Starts for BirthdayBoy\_52:

(4, 37365), (5, 37377), (Start: 8 @37410 has 39 MA's), (10, 37452), (11, 37461), (14, 37500), (19, 37542), (23, 37602), (28, 37686), (31, 37788), (36, 37902), (38, 37923), (41, 37953), (47, 38070), (54, 38130), (58, 38190), (59, 38238),

Gene: Charminar\_48 Start: 35379, Stop: 36212, Start Num: 8

Candidate Starts for Charminar\_48:

(1, 35280), (4, 35334), (5, 35346), (Start: 8 @35379 has 39 MA's), (10, 35421), (11, 35430), (16, 35475), (23, 35544), (28, 35628), (31, 35730), (41, 35895), (47, 36012), (48, 36024), (54, 36072), (56, 36084), (58, 36132),

Gene: Chivey\_39 Start: 24582, Stop: 25172, Start Num: 20

Candidate Starts for Chivey\_39:

(Start: 20 @24582 has 34 MA's), (24, 24636), (27, 24672), (32, 24786), (35, 24828), (37, 24834), (40, 24879), (44, 24924), (52, 25026), (53, 25032),

Gene: CoolCookie\_39 Start: 25354, Stop: 25944, Start Num: 20

Candidate Starts for CoolCookie\_39:

(Start: 20 @25354 has 34 MA's), (23, 25408), (27, 25444), (32, 25558), (35, 25600), (44, 25696), (52, 25798), (53, 25804),

Gene: Crestdrop\_39 Start: 24493, Stop: 25206, Start Num: 20

Candidate Starts for Crestdrop\_39:

(Start: 20 @24493 has 34 MA's), (27, 24637), (32, 24820), (35, 24862), (37, 24868), (40, 24913), (44, 24958), (52, 25060), (53, 25066),

Gene: Cybele\_39 Start: 25324, Stop: 25914, Start Num: 20

Candidate Starts for Cybele\_39:

(Start: 20 @25324 has 34 MA's), (23, 25378), (27, 25414), (32, 25528), (35, 25570), (44, 25666), (52, 25768), (53, 25774),

Gene: DannyDe\_39 Start: 24588, Stop: 25178, Start Num: 20

Candidate Starts for DannyDe\_39:

(Start: 20 @24588 has 34 MA's), (24, 24642), (27, 24678), (32, 24792), (35, 24834), (37, 24840), (40, 24885), (44, 24930), (52, 25032), (53, 25038),

Gene: Dauntless\_38 Start: 24910, Stop: 25500, Start Num: 20

Candidate Starts for Dauntless\_38:

(Start: 20 @24910 has 34 MA's), (23, 24964), (27, 25000), (32, 25114), (35, 25156), (37, 25162), (40, 25207), (44, 25252), (52, 25354), (53, 25360),

Gene: DaviePasture\_50 Start: 37051, Stop: 37911, Start Num: 8

Candidate Starts for DaviePasture\_50:

(4, 37006), (5, 37018), (Start: 8 @37051 has 39 MA's), (10, 37093), (11, 37102), (14, 37141), (19, 37183), (23, 37243), (28, 37327), (31, 37429), (36, 37543), (38, 37564), (41, 37594), (47, 37711), (54, 37771), (58, 37831), (59, 37879),

Gene: DoobyDoo\_48 Start: 35865, Stop: 36803, Start Num: 8

Candidate Starts for DoobyDoo\_48:

(4, 35820), (5, 35832), (Start: 8 @35865 has 39 MA's), (10, 35907), (11, 35916), (14, 35955), (19, 35997), (23, 36057), (25, 36135), (28, 36219), (31, 36321), (36, 36435), (38, 36456), (41, 36486), (47, 36603), (54, 36663), (58, 36723), (59, 36771),

Gene: DumpTruck\_46 Start: 35046, Stop: 35921, Start Num: 8

Candidate Starts for DumpTruck\_46:

(3, 34986), (Start: 8 @35046 has 39 MA's), (9, 35079), (12, 35112), (15, 35136), (17, 35157), (22, 35217), (30, 35412), (31, 35439), (33, 35529), (34, 35550), (38, 35574), (43, 35625), (46, 35670), (49, 35757), (51, 35769), (54, 35781), (58, 35841), (59, 35889),

Gene: Erudite\_38 Start: 24910, Stop: 25500, Start Num: 20

Candidate Starts for Erudite\_38:

(Start: 20 @24910 has 34 MA's), (23, 24964), (27, 25000), (32, 25114), (35, 25156), (37, 25162), (40, 25207), (44, 25252), (52, 25354), (53, 25360),

Gene: Erutan\_49 Start: 36477, Stop: 37337, Start Num: 8

Candidate Starts for Erutan\_49:

(Start: 8 @36477 has 39 MA's), (10, 36519), (11, 36528), (14, 36567), (19, 36609), (23, 36669), (28, 36753), (31, 36855), (36, 36969), (38, 36990), (41, 37020), (45, 37080), (46, 37086), (54, 37197), (58,

37257), (59, 37305),

Gene: FountainFog\_38 Start: 24631, Stop: 25224, Start Num: 20

Candidate Starts for FountainFog\_38:

(Start: 20 @24631 has 34 MA's), (29, 24757), (32, 24838), (35, 24880), (44, 24976), (52, 25078), (53, 25084),

Gene: FreddieHg\_39 Start: 24598, Stop: 25188, Start Num: 20

Candidate Starts for FreddieHg\_39:

(Start: 20 @24598 has 34 MA's), (24, 24652), (27, 24688), (32, 24802), (35, 24844), (37, 24850), (40, 24895), (44, 24940), (52, 25042), (53, 25048),

Gene: Fulcrum\_50 Start: 36704, Stop: 37564, Start Num: 8

Candidate Starts for Fulcrum\_50:

(4, 36659), (5, 36671), (Start: 8 @36704 has 39 MA's), (10, 36746), (11, 36755), (14, 36794), (19, 36836), (23, 36896), (28, 36980), (31, 37082), (36, 37196), (38, 37217), (41, 37247), (47, 37364), (54, 37424), (58, 37484), (59, 37532),

Gene: GOATification\_50 Start: 36704, Stop: 37564, Start Num: 8

Candidate Starts for GOATification\_50:

(4, 36659), (5, 36671), (Start: 8 @36704 has 39 MA's), (10, 36746), (11, 36755), (14, 36794), (19, 36836), (23, 36896), (28, 36980), (31, 37082), (36, 37196), (38, 37217), (41, 37247), (47, 37364), (54, 37424), (58, 37484), (59, 37532),

Gene: Genamy16\_52 Start: 36019, Stop: 36852, Start Num: 8

Candidate Starts for Genamy16\_52:

(1, 35920), (4, 35974), (5, 35986), (Start: 8 @36019 has 39 MA's), (10, 36061), (11, 36070), (16, 36115), (23, 36184), (28, 36268), (31, 36370), (36, 36484), (41, 36535), (47, 36652), (48, 36664), (54, 36712), (56, 36724), (58, 36772),

Gene: Gibbin\_51 Start: 37360, Stop: 38220, Start Num: 8

Candidate Starts for Gibbin\_51:

(4, 37315), (5, 37327), (Start: 8 @37360 has 39 MA's), (10, 37402), (11, 37411), (14, 37450), (19, 37492), (23, 37552), (28, 37636), (31, 37738), (36, 37852), (38, 37873), (41, 37903), (47, 38020), (54, 38080), (58, 38140), (59, 38188),

Gene: Gilda\_39 Start: 25348, Stop: 25938, Start Num: 20

Candidate Starts for Gilda\_39:

(Start: 20 @25348 has 34 MA's), (23, 25402), (27, 25438), (32, 25552), (35, 25594), (44, 25690), (52, 25792), (53, 25798),

Gene: Gretellyn\_49 Start: 37434, Stop: 38294, Start Num: 8

Candidate Starts for Gretellyn\_49:

(4, 37389), (5, 37401), (Start: 8 @37434 has 39 MA's), (10, 37476), (11, 37485), (13, 37512), (14, 37524), (18, 37560), (19, 37566), (23, 37626), (28, 37710), (31, 37812), (36, 37926), (38, 37947), (41, 37977), (47, 38094), (54, 38154), (58, 38214), (59, 38262),

Gene: Hager\_40 Start: 24835, Stop: 25425, Start Num: 20

Candidate Starts for Hager\_40:

(Start: 20 @24835 has 34 MA's), (26, 24916), (32, 25039), (35, 25081), (37, 25087), (44, 25177), (52, 25279),

Gene: Haunter\_39 Start: 24740, Stop: 25330, Start Num: 20

Candidate Starts for Haunter\_39:

(Start: 20 @24740 has 34 MA's), (23, 24794), (32, 24944), (35, 24986), (44, 25082), (52, 25184), (53, 25190),

Gene: Hiddenleaf\_39 Start: 24582, Stop: 25172, Start Num: 20

Candidate Starts for Hiddenleaf\_39:

(Start: 20 @24582 has 34 MA's), (24, 24636), (27, 24672), (32, 24786), (35, 24828), (37, 24834), (40, 24879), (44, 24924), (52, 25026), (53, 25032),

Gene: JDawG\_38 Start: 24999, Stop: 25589, Start Num: 20

Candidate Starts for JDawG\_38:

(Start: 20 @24999 has 34 MA's), (23, 25053), (27, 25089), (32, 25203), (35, 25245), (40, 25296), (44, 25341), (53, 25449),

Gene: Jalebi\_49 Start: 37779, Stop: 38639, Start Num: 8

Candidate Starts for Jalebi\_49:

(4, 37734), (5, 37746), (Start: 8 @37779 has 39 MA's), (10, 37821), (11, 37830), (14, 37869), (19, 37911), (23, 37971), (28, 38055), (31, 38157), (36, 38271), (38, 38292), (41, 38322), (47, 38439), (54, 38499), (58, 38559), (59, 38607),

Gene: Jamemuya19\_49 Start: 35624, Stop: 36457, Start Num: 8

Candidate Starts for Jamemuya19\_49:

(1, 35525), (4, 35579), (5, 35591), (Start: 8 @35624 has 39 MA's), (10, 35666), (11, 35675), (16, 35720), (23, 35789), (28, 35873), (31, 35975), (36, 36089), (41, 36140), (47, 36257), (48, 36269), (54, 36317), (56, 36329), (58, 36377),

Gene: JingleBells\_39 Start: 24703, Stop: 25293, Start Num: 20

Candidate Starts for JingleBells\_39:

(Start: 20 @24703 has 34 MA's), (24, 24757), (27, 24793), (32, 24907), (35, 24949), (37, 24955), (40, 25000), (44, 25045), (52, 25147), (53, 25153),

Gene: Karate\_38 Start: 25350, Stop: 25943, Start Num: 20

Candidate Starts for Karate\_38:

(Start: 20 @25350 has 34 MA's), (29, 25476), (32, 25557), (35, 25599), (37, 25605), (44, 25695), (52, 25797),

Gene: Krampus\_39 Start: 25356, Stop: 25946, Start Num: 20

Candidate Starts for Krampus\_39:

(Start: 20 @25356 has 34 MA's), (23, 25410), (27, 25446), (32, 25560), (35, 25602), (37, 25608), (44, 25698), (52, 25800),

Gene: Lambo\_49 Start: 36805, Stop: 37665, Start Num: 8

Candidate Starts for Lambo\_49:

(4, 36760), (5, 36772), (Start: 8 @36805 has 39 MA's), (10, 36847), (11, 36856), (13, 36883), (14, 36895), (19, 36937), (23, 36997), (28, 37081), (31, 37183), (36, 37297), (38, 37318), (41, 37348), (47, 37465), (54, 37525), (57, 37543), (58, 37585), (59, 37633),

Gene: LavAbarElk\_49 Start: 35920, Stop: 36780, Start Num: 8

Candidate Starts for LavAbarElk\_49:

(4, 35875), (5, 35887), (Start: 8 @35920 has 39 MA's), (10, 35962), (11, 35971), (14, 36010), (19, 36052), (23, 36112), (28, 36196), (31, 36298), (36, 36412), (38, 36433), (41, 36463), (47, 36580), (54, 36640), (58, 36700), (59, 36748),

Gene: Lila22\_50 Start: 37402, Stop: 38262, Start Num: 8

Candidate Starts for Lila22\_50:

(4, 37357), (5, 37369), (Start: 8 @37402 has 39 MA's), (10, 37444), (11, 37453), (13, 37480), (14, 37492), (18, 37528), (19, 37534), (23, 37594), (28, 37678), (31, 37780), (36, 37894), (38, 37915), (41, 37945), (47, 38062), (54, 38122), (58, 38182), (59, 38230),

Gene: LuckyLeo\_48 Start: 36209, Stop: 37057, Start Num: 8

Candidate Starts for LuckyLeo\_48:

(4, 36164), (5, 36176), (Start: 8 @36209 has 39 MA's), (10, 36251), (11, 36260), (23, 36392), (31, 36578), (36, 36692), (39, 36737), (41, 36743), (47, 36860), (48, 36872), (51, 36908), (54, 36920), (58, 36980), (59, 37028),

Gene: Mima20\_49 Start: 36951, Stop: 37811, Start Num: 8

Candidate Starts for Mima20\_49:

(4, 36906), (5, 36918), (Start: 8 @36951 has 39 MA's), (10, 36993), (11, 37002), (14, 37041), (19, 37083), (23, 37143), (28, 37227), (31, 37329), (36, 37443), (38, 37464), (41, 37494), (47, 37611), (54, 37671), (58, 37731), (59, 37779),

Gene: MoiGyank\_53 Start: 37848, Stop: 38708, Start Num: 8

Candidate Starts for MoiGyank\_53:

(4, 37803), (5, 37815), (Start: 8 @37848 has 39 MA's), (10, 37890), (11, 37899), (14, 37938), (19, 37980), (23, 38040), (28, 38124), (31, 38226), (36, 38340), (38, 38361), (41, 38391), (47, 38508), (54, 38568), (58, 38628), (59, 38676),

Gene: MortySmith\_37 Start: 24387, Stop: 24977, Start Num: 20

Candidate Starts for MortySmith\_37:

(Start: 20 @24387 has 34 MA's), (23, 24441), (27, 24477), (32, 24591), (35, 24633), (40, 24684), (44, 24729), (52, 24831), (53, 24837),

Gene: NarutoRun\_39 Start: 25324, Stop: 25914, Start Num: 20

Candidate Starts for NarutoRun\_39:

(Start: 20 @25324 has 34 MA's), (23, 25378), (27, 25414), (32, 25528), (35, 25570), (44, 25666), (52, 25768), (53, 25774),

Gene: Neptune\_39 Start: 25324, Stop: 25914, Start Num: 20

Candidate Starts for Neptune\_39:

(Start: 20 @25324 has 34 MA's), (23, 25378), (27, 25414), (32, 25528), (35, 25570), (44, 25666), (52, 25768), (53, 25774),

Gene: NorManre\_52 Start: 37060, Stop: 37920, Start Num: 8

Candidate Starts for NorManre\_52:

(4, 37015), (5, 37027), (Start: 8 @37060 has 39 MA's), (10, 37102), (11, 37111), (14, 37150), (19, 37192), (23, 37252), (28, 37336), (31, 37438), (36, 37552), (38, 37573), (41, 37603), (47, 37720), (54, 37780), (58, 37840), (59, 37888),

Gene: NovaSharks\_51 Start: 35610, Stop: 36443, Start Num: 8

Candidate Starts for NovaSharks\_51:

(1, 35511), (4, 35565), (5, 35577), (Start: 8 @35610 has 39 MA's), (10, 35652), (11, 35661), (16, 35706), (23, 35775), (28, 35859), (31, 35961), (36, 36075), (41, 36126), (47, 36243), (48, 36255), (54, 36303), (56, 36315), (58, 36363),

Gene: OhDear\_39 Start: 25322, Stop: 25912, Start Num: 20

Candidate Starts for OhDear\_39:

(Start: 20 @25322 has 34 MA's), (23, 25376), (27, 25412), (32, 25526), (35, 25568), (44, 25664), (52, 25766), (53, 25772),

Gene: OtterstedtS21\_49 Start: 36720, Stop: 37580, Start Num: 8

Candidate Starts for OtterstedtS21\_49:

(4, 36675), (5, 36687), (Start: 8 @36720 has 39 MA's), (10, 36762), (11, 36771), (13, 36798), (14, 36810), (18, 36846), (19, 36852), (23, 36912), (28, 36996), (31, 37098), (36, 37212), (38, 37233), (41, 37263), (47, 37380), (54, 37440), (58, 37500), (59, 37548),

Gene: OverHedge\_39 Start: 25314, Stop: 25904, Start Num: 20

Candidate Starts for OverHedge\_39:

(Start: 20 @25314 has 34 MA's), (23, 25368), (27, 25404), (32, 25518), (35, 25560), (44, 25656), (52, 25758), (53, 25764),

Gene: ParvusTarda\_49 Start: 36222, Stop: 37082, Start Num: 8

Candidate Starts for ParvusTarda\_49:

(4, 36177), (5, 36189), (Start: 8 @36222 has 39 MA's), (10, 36264), (11, 36273), (14, 36312), (19, 36354), (23, 36414), (28, 36498), (31, 36600), (36, 36714), (38, 36735), (41, 36765), (47, 36882), (54, 36942), (58, 37002), (59, 37050),

Gene: Patos\_52 Start: 37059, Stop: 37919, Start Num: 8

Candidate Starts for Patos\_52:

(4, 37014), (5, 37026), (Start: 8 @37059 has 39 MA's), (10, 37101), (11, 37110), (14, 37149), (19, 37191), (23, 37251), (28, 37335), (31, 37437), (36, 37551), (38, 37572), (41, 37602), (47, 37719), (54, 37779), (58, 37839), (59, 37887),

Gene: Pharpay\_39 Start: 25369, Stop: 25959, Start Num: 20

Candidate Starts for Pharpay\_39:

(Start: 20 @25369 has 34 MA's), (23, 25423), (27, 25459), (32, 25573), (35, 25615), (44, 25711), (52, 25813), (53, 25819),

Gene: PhunaPhoke\_39 Start: 25342, Stop: 25932, Start Num: 20

Candidate Starts for PhunaPhoke\_39:

(Start: 20 @25342 has 34 MA's), (23, 25396), (27, 25432), (32, 25546), (35, 25588), (44, 25684), (52, 25786), (53, 25792),

Gene: Potty\_39 Start: 25347, Stop: 25937, Start Num: 20

Candidate Starts for Potty\_39:

(Start: 20 @25347 has 34 MA's), (23, 25401), (27, 25437), (32, 25551), (35, 25593), (44, 25689), (52, 25791), (53, 25797),

Gene: Poultruss\_38 Start: 25693, Stop: 26283, Start Num: 20

Candidate Starts for Poultruss\_38:

(Start: 20 @25693 has 34 MA's), (23, 25747), (27, 25783), (32, 25897), (35, 25939), (37, 25945), (44, 26035), (52, 26137), (53, 26143),

Gene: Pywacket\_48 Start: 37551, Stop: 38411, Start Num: 8

Candidate Starts for Pywacket\_48:

(4, 37506), (5, 37518), (Start: 8 @37551 has 39 MA's), (10, 37593), (11, 37602), (14, 37641), (19, 37683), (23, 37743), (28, 37827), (31, 37929), (36, 38043), (38, 38064), (41, 38094), (47, 38211), (54, 38271), (58, 38331), (59, 38379),

Gene: Rachella\_39 Start: 25350, Stop: 25940, Start Num: 20

Candidate Starts for Rachella\_39:

(Start: 20 @25350 has 34 MA's), (23, 25404), (32, 25554), (35, 25596), (37, 25602), (44, 25692), (52, 25794),

Gene: Ranch\_51 Start: 35892, Stop: 36752, Start Num: 8

Candidate Starts for Ranch\_51:

(4, 35847), (5, 35859), (Start: 8 @35892 has 39 MA's), (10, 35934), (11, 35943), (13, 35970), (14, 35982), (18, 36018), (19, 36024), (23, 36084), (28, 36168), (31, 36270), (36, 36384), (38, 36405), (41, 36435), (47, 36552), (54, 36612), (57, 36630), (58, 36672), (59, 36720),

Gene: RazorC\_49 Start: 35763, Stop: 36596, Start Num: 8

Candidate Starts for RazorC\_49:

(1, 35664), (4, 35718), (5, 35730), (Start: 8 @35763 has 39 MA's), (10, 35805), (11, 35814), (16, 35859), (23, 35928), (28, 36012), (31, 36114), (36, 36228), (41, 36279), (47, 36396), (48, 36408), (54, 36456), (56, 36468), (58, 36516),

Gene: Riduram\_48 Start: 35339, Stop: 36172, Start Num: 8

Candidate Starts for Riduram\_48:

(1, 35240), (4, 35294), (5, 35306), (Start: 8 @35339 has 39 MA's), (10, 35381), (11, 35390), (16, 35435), (23, 35504), (28, 35588), (31, 35690), (36, 35804), (41, 35855), (47, 35972), (48, 35984), (54, 36032), (56, 36044), (58, 36092),

Gene: Rie18\_39 Start: 24840, Stop: 25496, Start Num: 20

Candidate Starts for Rie18\_39:

(6, 24684), (Start: 20 @24840 has 34 MA's), (22, 24885), (27, 24984), (29, 25029), (32, 25110), (35, 25152), (37, 25158), (44, 25248), (52, 25350),

Gene: Rota\_48 Start: 36369, Stop: 37220, Start Num: 8

Candidate Starts for Rota\_48:

(4, 36324), (5, 36336), (Start: 8 @36369 has 39 MA's), (10, 36411), (11, 36420), (23, 36552), (28, 36636), (31, 36738), (36, 36852), (38, 36873), (41, 36903), (47, 37020), (54, 37080), (58, 37140), (59, 37188),

Gene: Rukungu\_52 Start: 37632, Stop: 38492, Start Num: 8

Candidate Starts for Rukungu\_52:

(4, 37587), (5, 37599), (Start: 8 @37632 has 39 MA's), (10, 37674), (11, 37683), (14, 37722), (19, 37764), (23, 37824), (28, 37908), (31, 38010), (36, 38124), (38, 38145), (41, 38175), (47, 38292), (54, 38352), (58, 38412), (59, 38460),

Gene: Rumi\_50 Start: 35307, Stop: 36140, Start Num: 8

Candidate Starts for Rumi\_50:

(1, 35208), (4, 35262), (5, 35274), (Start: 8 @35307 has 39 MA's), (10, 35349), (11, 35358), (16, 35403), (23, 35472), (28, 35556), (31, 35658), (36, 35772), (41, 35823), (47, 35940), (48, 35952), (54, 36000), (56, 36012), (58, 36060),

Gene: Sadboi\_50 Start: 37435, Stop: 38295, Start Num: 8

Candidate Starts for Sadboi\_50:

(4, 37390), (5, 37402), (Start: 8 @37435 has 39 MA's), (10, 37477), (11, 37486), (13, 37513), (14, 37525), (18, 37561), (19, 37567), (23, 37627), (28, 37711), (31, 37813), (36, 37927), (38, 37948), (41, 37978), (47, 38095), (54, 38155), (58, 38215), (59, 38263),

Gene: Sampudon\_50 Start: 37779, Stop: 38639, Start Num: 8

Candidate Starts for Sampudon\_50:

(4, 37734), (5, 37746), (Start: 8 @37779 has 39 MA's), (10, 37821), (11, 37830), (14, 37869), (19, 37911), (23, 37971), (28, 38055), (31, 38157), (36, 38271), (38, 38292), (41, 38322), (47, 38439), (54, 38499), (58, 38559), (59, 38607),

Gene: SilentWarrior\_39 Start: 24595, Stop: 25185, Start Num: 20

Candidate Starts for SilentWarrior\_39:

(Start: 20 @24595 has 34 MA's), (24, 24649), (27, 24685), (32, 24799), (35, 24841), (37, 24847), (40, 24892), (44, 24937), (52, 25039), (53, 25045),

Gene: Snakehole\_39 Start: 24527, Stop: 25117, Start Num: 20

Candidate Starts for Snakehole\_39:

(Start: 20 @24527 has 34 MA's), (23, 24581), (32, 24731), (35, 24773), (37, 24779), (44, 24869), (52, 24971), (53, 24977),

Gene: Stormer\_51 Start: 35311, Stop: 36144, Start Num: 8

Candidate Starts for Stormer\_51:

(4, 35266), (5, 35278), (Start: 8 @35311 has 39 MA's), (10, 35353), (11, 35362), (16, 35407), (23, 35476), (28, 35560), (31, 35662), (36, 35776), (41, 35827), (47, 35944), (48, 35956), (54, 36004), (56, 36016), (58, 36064),

Gene: Tedro\_39 Start: 24820, Stop: 25410, Start Num: 20

Candidate Starts for Tedro\_39:

(Start: 20 @24820 has 34 MA's), (23, 24874), (27, 24910), (32, 25024), (35, 25066), (44, 25162), (52, 25264), (53, 25270),

Gene: Tiggy93\_39 Start: 25353, Stop: 25943, Start Num: 20

Candidate Starts for Tiggy93\_39:

(Start: 20 @25353 has 34 MA's), (23, 25407), (27, 25443), (32, 25557), (35, 25599), (44, 25695), (52, 25797), (53, 25803),

Gene: Tillicus\_47 Start: 36141, Stop: 36998, Start Num: 8

Candidate Starts for Tillicus\_47:

(5, 36108), (Start: 8 @36141 has 39 MA's), (10, 36183), (11, 36192), (14, 36231), (19, 36273), (23, 36333), (31, 36519), (33, 36609), (36, 36633), (39, 36678), (41, 36684), (47, 36801), (48, 36813), (51, 36849), (54, 36861), (58, 36921), (59, 36969),

Gene: Tongui\_39 Start: 24947, Stop: 25540, Start Num: 20

Candidate Starts for Tongui\_39:

(Start: 20 @24947 has 34 MA's), (29, 25073), (32, 25154), (35, 25196), (43, 25271), (44, 25292), (52, 25394),

Gene: Wojtek\_48 Start: 36233, Stop: 37084, Start Num: 8

Candidate Starts for Wojtek\_48:

(2, 36164), (4, 36188), (5, 36200), (Start: 8 @36233 has 39 MA's), (10, 36275), (11, 36284), (23, 36416), (31, 36602), (36, 36716), (38, 36737), (41, 36767), (47, 36884), (54, 36944), (58, 37004), (59, 37052),

Gene: Wollypog\_39 Start: 29480, Stop: 30064, Start Num: 21

Candidate Starts for Wollypog\_39:

(Start: 21 @29480 has 1 MA's), (22, 29522), (42, 29789), (55, 29933), (56, 29939),

Gene: Xenia2\_47 Start: 35094, Stop: 35969, Start Num: 8

Candidate Starts for Xenia2\_47:

(3, 35034), (Start: 8 @35094 has 39 MA's), (9, 35127), (12, 35160), (15, 35184), (17, 35205), (30, 35460), (31, 35487), (33, 35577), (34, 35598), (38, 35622), (43, 35673), (46, 35718), (49, 35805), (51, 35817), (54, 35829), (58, 35889), (59, 35937),

Gene: Yikes\_51 Start: 37846, Stop: 38706, Start Num: 8

Candidate Starts for Yikes\_51:

(4, 37801), (5, 37813), (Start: 8 @37846 has 39 MA's), (10, 37888), (11, 37897), (14, 37936), (19, 37978), (23, 38038), (28, 38122), (31, 38224), (36, 38338), (38, 38359), (41, 38389), (47, 38506), (54, 38566), (58, 38626), (59, 38674),

Gene: Zany\_48 Start: 36845, Stop: 37696, Start Num: 8

Candidate Starts for Zany\_48:

(4, 36800), (5, 36812), (Start: 8 @36845 has 39 MA's), (10, 36887), (11, 36896), (23, 37028), (28, 37112), (31, 37214), (36, 37328), (38, 37349), (41, 37379), (47, 37496), (54, 37556), (58, 37616), (59, 37664),