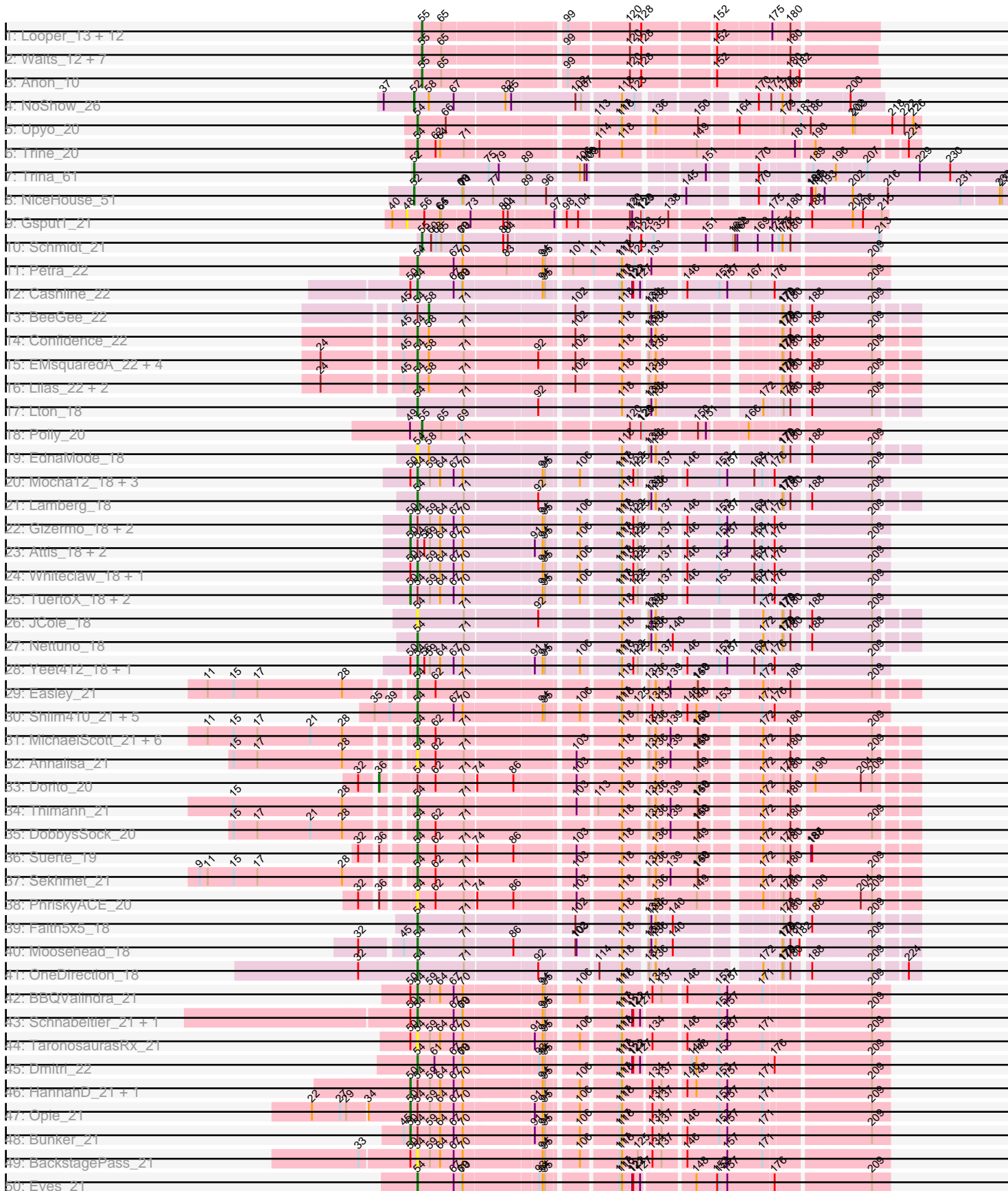
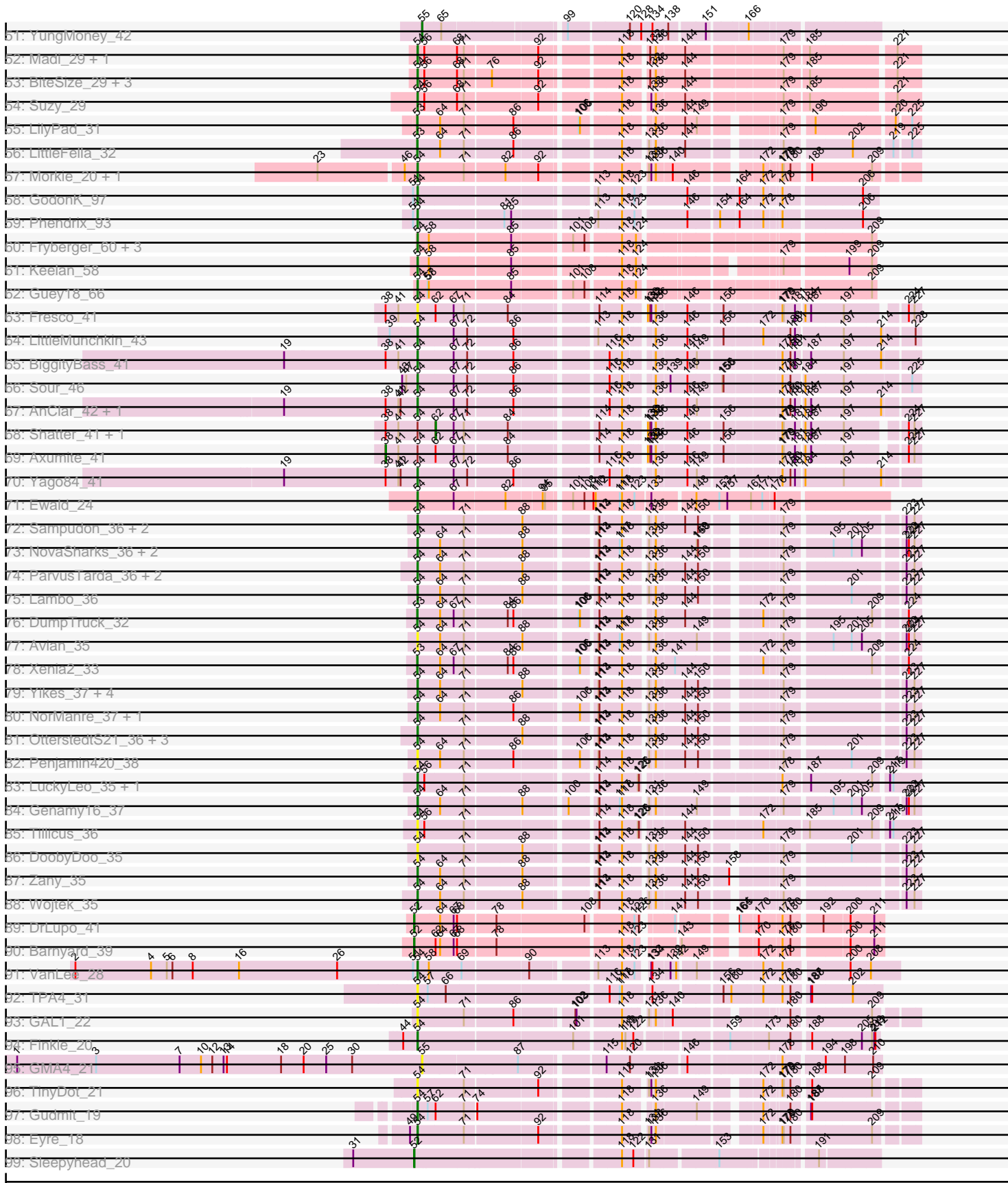


Pham 161636



Pham 161636



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 161636 Report

This analysis was run 04/28/24 on database version 559.

Pham number 161636 has 173 members, 21 are drafts.

Phages represented in each track:

- Track 1 : Looper\_13, Boohoo\_12, JSwag\_12, Epsocamisio\_12, KatherineG\_12, Nebulosus\_12, MinecraftSteve\_13, LastResort\_12, ShayRa\_13, ReMo\_12, DekHockey33\_12, Anaysia\_12, Soups\_12
- Track 2 : Waits\_12, Battleship\_13, Strosahl\_12, Remus\_12, Oofda\_13, Switzerland\_12, Rosalind\_12, Nedarya\_11
- Track 3 : Anon\_10
- Track 4 : NoShow\_26
- Track 5 : Upyo\_20
- Track 6 : Trine\_20
- Track 7 : Trina\_61
- Track 8 : NiceHouse\_51
- Track 9 : Gspu1\_21
- Track 10 : Schmidt\_21
- Track 11 : Petra\_22
- Track 12 : Cashline\_22
- Track 13 : BeeGee\_22
- Track 14 : Confidence\_22
- Track 15 : EMSquaredA\_22, Pollux\_22, Marteena\_22, BritBrat\_22, Floral\_22
- Track 16 : Lilas\_22, EnalisNailo\_22, Bradissa\_22
- Track 17 : Lton\_18
- Track 18 : Polly\_20
- Track 19 : EdnaMode\_18
- Track 20 : Mocha12\_18, Haley23\_18, Clap\_18, GemG\_18
- Track 21 : Lamberg\_18
- Track 22 : Gizermo\_18, Ebert\_18, Sahara\_18
- Track 23 : Attis\_18, SoilAssassin\_18, Bjaner7\_18
- Track 24 : Whiteclaw\_18, Sproutie\_18
- Track 25 : TuertoX\_18, Savage\_18, Cynthia\_18
- Track 26 : JCole\_18
- Track 27 : Nettuno\_18
- Track 28 : Yeet412\_18, LordFarquaad\_18
- Track 29 : Easley\_21
- Track 30 : Shlim410\_21, Adora\_21, Howe\_21, Hortense\_21, Twinkle\_21, Mcklovin\_21
- Track 31 : MichaelScott\_21, Dolores\_21, Beenie\_21, Clark\_21, WinkNick\_21, Samman98\_21, Oregano\_21
- Track 32 : Annalisa\_21

- Track 33 : Dorito\_20
- Track 34 : Thimann\_21
- Track 35 : DobbysSock\_20
- Track 36 : Suerte\_19
- Track 37 : Sekhmet\_21
- Track 38 : PhriskyACE\_20
- Track 39 : Faith5x5\_18
- Track 40 : Moosehead\_18
- Track 41 : OneDirection\_18
- Track 42 : BBQValindra\_21
- Track 43 : Schnabeltier\_21, MagicMan\_21
- Track 44 : TaronosaurusRx\_21
- Track 45 : Dmitri\_22
- Track 46 : HannahD\_21, GEazy\_21
- Track 47 : Opie\_21
- Track 48 : Bunker\_21
- Track 49 : BackstagePass\_21
- Track 50 : Eyes\_21
- Track 51 : YungMoney\_42
- Track 52 : Madi\_29, Sienna\_29
- Track 53 : BiteSize\_29, Terapin\_30, Beyoncage\_29, Djokovic\_29
- Track 54 : Suzy\_29
- Track 55 : LilyPad\_31
- Track 56 : LittleFella\_32
- Track 57 : Morkie\_20, PhorbPhlower\_20
- Track 58 : GodonK\_97
- Track 59 : Phendrix\_93
- Track 60 : Fryberger\_60, Volt\_63, Ronaldo\_63, Ziko\_63
- Track 61 : Keelan\_58
- Track 62 : Guey18\_66
- Track 63 : Fresco\_41
- Track 64 : LittleMunchkin\_43
- Track 65 : BiggityBass\_41
- Track 66 : Sour\_46
- Track 67 : AnClar\_42, Sisko\_41
- Track 68 : Shatter\_41, Ligma\_41
- Track 69 : Axumite\_41
- Track 70 : Yago84\_41
- Track 71 : Ewald\_24
- Track 72 : Sampudon\_36, MoiGyank\_40, Jalebi\_35
- Track 73 : NovaSharks\_36, Rumi\_36, Alyssmiracle\_37
- Track 74 : ParvusTarda\_36, Fulcrum\_37, GOATification\_37
- Track 75 : Lambo\_36
- Track 76 : DumpTruck\_32
- Track 77 : Avian\_35
- Track 78 : Xenia2\_33
- Track 79 : Yikes\_37, Gibbin\_37, Lila22\_37, BirthdayBoy\_37, Erutan\_36
- Track 80 : NorManre\_37, Patos\_37
- Track 81 : OtterstedtS21\_36, Gretellyn\_36, Sadboi\_37, Ranch\_36
- Track 82 : Penjamin420\_38
- Track 83 : LuckyLeo\_35, Apeppi\_33
- Track 84 : Genamy16\_37
- Track 85 : Tillicus\_36

- Track 86 : DoobyDoo\_35
- Track 87 : Zany\_35
- Track 88 : Wojtek\_35
- Track 89 : DrLupo\_41
- Track 90 : Barnyard\_39
- Track 91 : VanLee\_28
- Track 92 : TPA4\_31
- Track 93 : GAL1\_22
- Track 94 : Finkle\_20
- Track 95 : GMA4\_21
- Track 96 : TinyDot\_21
- Track 97 : Gudmit\_19
- Track 98 : Eyre\_18
- Track 99 : Sleepyhead\_20

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

The start number called the most often in the published annotations is 54, it was called in 101 of the 152 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Adora\_21, Alyssmiracle\_37, AnClar\_42, Annalisa\_21, Apeppi\_33, Avian\_35, BBQValindra\_21, BackstagePass\_21, Beenie\_21, Beyoncage\_29, BiggityBass\_41, BirthdayBoy\_37, BiteSize\_29, Bradissa\_22, BritBrat\_22, Cashline\_22, Clap\_18, Clark\_21, Confidence\_22, Djokovic\_29, Dmitri\_22, DobbysSock\_20, Dolores\_21, DoobyDoo\_35, EMSquaredA\_22, Easley\_21, EdnaMode\_18, EnalisNailo\_22, Erutan\_36, Ewald\_24, Eyes\_21, Eyre\_18, Faith5x5\_18, Finkle\_20, Floral\_22, Fresco\_41, Fryberger\_60, Fulcrum\_37, GAL1\_22, GOATification\_37, GemG\_18, Genamy16\_37, Gibbin\_37, GodonK\_97, GretelLyn\_36, Gudmit\_19, Guey18\_66, Haley23\_18, Hortense\_21, Howe\_21, JCole\_18, Jalebi\_35, Keelan\_58, Lamberg\_18, Lambo\_36, Lila22\_37, Lilas\_22, LittleMunchkin\_43, LordFarquaad\_18, Lton\_18, LuckyLeo\_35, Madi\_29, MagicMan\_21, Marteena\_22, Mcklovin\_21, MichaelScott\_21, Mocha12\_18, MoiGyank\_40, Moosehead\_18, Morkie\_20, Nettuno\_18, NorManre\_37, NovaSharks\_36, OneDirection\_18, Oregano\_21, OtterstedtS21\_36, ParvusTarda\_36, Patos\_37, Penjamin420\_38, Petra\_22, Phendrix\_93, PhorbesPhlower\_20, PhriskyACE\_20, Pollux\_22, Ranch\_36, Ronaldo\_63, Rumi\_36, Sadboi\_37, Samman98\_21, Sampudon\_36, Schnabeltier\_21, Sekhmet\_21, Shlim410\_21, Sienna\_29, Sisko\_41, Sour\_46, Sproutie\_18, Suerte\_19, Suzy\_29, TPA4\_31, TaronosaurusRx\_21, Terapin\_30, Thimann\_21, Tillicus\_36, TinyDot\_21, Trine\_20, Twinkle\_21, Upyo\_20, VanLee\_28, Volt\_63, Whiteclaw\_18, WinkNick\_21, Wojtek\_35, Yago84\_41, Yeet412\_18, Yikes\_37, Zany\_35, Ziko\_63,

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

- Attis\_18, Axumite\_41, BeeGee\_22, Bjanes7\_18, Bunker\_21, Cynthia\_18, Dorito\_20, Ebert\_18, GEazy\_21, Gizermo\_18, HannahD\_21, Ligma\_41, Opie\_21, Sahara\_18, Savage\_18, Shatter\_41, SoilAssassin\_18, TuertoX\_18,

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

- Anaysia\_12, Anon\_10, Barnyard\_39, Battleship\_13, Boohoo\_12, DekHockey33\_12, DrLupo\_41, DumpTruck\_32, Epsocamisio\_12, GMA4\_21, Gsput1\_21, JSwag\_12,

KatherineG\_12, LastResort\_12, LilyPad\_31, LittleFella\_32, Looper\_13, MinecraftSteve\_13, Nebulosus\_12, Nedarya\_11, NiceHouse\_51, NoShow\_26, Oofda\_13, Polly\_20, ReMo\_12, Remus\_12, Rosalind\_12, Schmidt\_21, ShayRa\_13, Sleepyhead\_20, Soups\_12, Strosahl\_12, Switzerland\_12, Trina\_61, Waits\_12, Xenia2\_33, YungMoney\_42,

### Summary by start number:

#### Start 36:

- Found in 3 of 173 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 1 of 152
- Called 33.3% of time when present
- Phage (with cluster) where this start called: Dorito\_20 (CZ4),

#### Start 38:

- Found in 8 of 173 ( 4.6% ) of genes in pham
- Manual Annotations of this start: 1 of 152
- Called 12.5% of time when present
- Phage (with cluster) where this start called: Axumite\_41 (DR),

#### Start 48:

- Found in 1 of 173 ( 0.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Gspu1\_21 (CU2),

#### Start 50:

- Found in 27 of 173 ( 15.6% ) of genes in pham
- Manual Annotations of this start: 13 of 152
- Called 48.1% of time when present
- Phage (with cluster) where this start called: Attis\_18 (CZ2), Bjanes7\_18 (CZ2), Bunker\_21 (DB), Cynthia\_18 (CZ2), Ebert\_18 (CZ2), GEazy\_21 (DB), Gizermo\_18 (CZ2), HannahD\_21 (DB), Opie\_21 (DB), Sahara\_18 (CZ2), Savage\_18 (CZ2), SoilAssassin\_18 (CZ2), TuertoX\_18 (CZ2),

#### Start 52:

- Found in 6 of 173 ( 3.5% ) of genes in pham
- Manual Annotations of this start: 6 of 152
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Barnyard\_39 (H2), DrLupo\_41 (H2), NiceHouse\_51 (CE), NoShow\_26 (AB), Sleepyhead\_20 (singleton), Trina\_61 (CE),

#### Start 53:

- Found in 4 of 173 ( 2.3% ) of genes in pham
- Manual Annotations of this start: 4 of 152
- Called 100.0% of time when present
- Phage (with cluster) where this start called: DumpTruck\_32 (DV), LilyPad\_31 (DG1), LittleFella\_32 (DG2), Xenia2\_33 (DV),

#### Start 54:

- Found in 136 of 173 ( 78.6% ) of genes in pham
- Manual Annotations of this start: 101 of 152
- Called 86.8% of time when present

- Phage (with cluster) where this start called: Adora\_21 (CZ4), Alyssamiracle\_37 (DV), AnClar\_42 (DR), Annalisa\_21 (CZ4), Apeppi\_33 (DV), Avian\_35 (DV), BBQValindra\_21 (DB), BackstagePass\_21 (DB), Beenie\_21 (CZ4), Beyoncage\_29 (DG1), BiggityBass\_41 (DR), BirthdayBoy\_37 (DV), BiteSize\_29 (DG1), Bradissa\_22 (CY1), BritBrat\_22 (CY2), Cashline\_22 (CY), Clap\_18 (CZ2), Clark\_21 (CZ4), Confidence\_22 (CY1), Djokovic\_29 (DG1), Dmitri\_22 (DB), DobbysSock\_20 (CZ4), Dolores\_21 (CZ4), DoobyDoo\_35 (DV), EMSquaredA\_22 (CY1), Easley\_21 (CZ4), EdnaMode\_18 (CZ2), EnalisNailo\_22 (CY1), Erutan\_36 (DV), Ewald\_24 (DT), Eyes\_21 (DB), Eyre\_18 (singleton), Faith5x5\_18 (CZ6), Finkle\_20 (singleton), Floral\_22 (CY1), Fresco\_41 (DR), Fryberger\_60 (DP), Fulcrum\_37 (DV), GAL1\_22 (singleton), GOATification\_37 (DV), GemG\_18 (CZ2), Genamy16\_37 (DV), Gibbin\_37 (DV), GodonK\_97 (DK), Gretellyn\_36 (DV), Gudmit\_19 (singleton), Guey18\_66 (DP), Haley23\_18 (CZ2), Hortense\_21 (CZ4), Howe\_21 (CZ4), JCole\_18 (CZ2), Jalebi\_35 (DV), Keelan\_58 (DP), Lamberg\_18 (CZ2), Lambo\_36 (DV), Lila22\_37 (DV), Lilas\_22 (CY1), LittleMunchkin\_43 (DR), LordFarquaad\_18 (CZ2), Lton\_18 (CZ), LuckyLeo\_35 (DV), Madi\_29 (DG1), MagicMan\_21 (DB), Marteena\_22 (CY1), Mcklovin\_21 (CZ4), MichaelScott\_21 (CZ4), Mocha12\_18 (CZ2), MoiGyank\_40 (DV), Moosehead\_18 (CZ6), Morkie\_20 (DH), Nettuno\_18 (CZ2), NorManre\_37 (DV), NovaSharks\_36 (DV), OneDirection\_18 (CZ6), Oregano\_21 (CZ4), OtterstedtS21\_36 (DV), ParvusTarda\_36 (DV), Patos\_37 (DV), Penjamin420\_38 (DV), Petra\_22 (CV), Phendrix\_93 (DK), PhorbesPhlower\_20 (DH), PhriskyACE\_20 (CZ4), Pollux\_22 (CY1), Ranch\_36 (DV), Ronaldo\_63 (DP), Rumi\_36 (DV), Sadboi\_37 (DV), Samman98\_21 (CZ4), Sampudon\_36 (DV), Schnabeltier\_21 (DB), Sekhmet\_21 (CZ4), Shlim410\_21 (CZ4), Sienna\_29 (DG1), Sisko\_41 (DR), Sour\_46 (DR), Sproutie\_18 (CZ2), Suerte\_19 (CZ4), Suzy\_29 (DG1), TPA4\_31 (singleton), TaronosaurusRx\_21 (DB), Terapin\_30 (DG1), Thimann\_21 (CZ4), Tillicus\_36 (DV), TinyDot\_21 (singleton), Trine\_20 (CD), Twinkle\_21 (CZ4), Upyo\_20 (CD), VanLee\_28 (singleton), Volt\_63 (DP), Whiteclaw\_18 (CZ2), WinkNick\_21 (CZ4), Wojtek\_35 (DV), Yago84\_41 (DR), Yeet412\_18 (CZ2), Yikes\_37 (DV), Zany\_35 (DV), Ziko\_63 (DP),

Start 55:

- Found in 26 of 173 ( 15.0% ) of genes in pham
- Manual Annotations of this start: 24 of 152
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Anaysia\_12 (A15), Anon\_10 (A15), Battleship\_13 (A15), Boohoo\_12 (A15), DekHockey33\_12 (A15), Epsocamisio\_12 (A15), GMA4\_21 (singleton), JSwag\_12 (A15), KatherineG\_12 (A15), LastResort\_12 (A15), Looper\_13 (A15), MinecraftSteve\_13 (A15), Nebulosus\_12 (A15), Nedarya\_11 (A15), Oofda\_13 (A15), Polly\_20 (CZ1), ReMo\_12 (A15), Remus\_12 (A15), Rosalind\_12 (A15), Schmidt\_21 (CU4), ShayRa\_13 (A15), Soups\_12 (A15), Strosahl\_12 (A15), Switzerland\_12 (A15), Waits\_12 (A15), YungMoney\_42 (DC1),

Start 58:

- Found in 19 of 173 ( 11.0% ) of genes in pham
- Manual Annotations of this start: 1 of 152
- Called 5.3% of time when present
- Phage (with cluster) where this start called: BeeGee\_22 (CY),

Start 62:

- Found in 21 of 173 ( 12.1% ) of genes in pham
- Manual Annotations of this start: 1 of 152
- Called 9.5% of time when present

- Phage (with cluster) where this start called: Ligma\_41 (DR), Shatter\_41 (DR),

### **Summary by clusters:**

There are 27 clusters represented in this pham: singleton, DK, DH, CZ2, CZ1, CZ6, CZ4, DV, DT, DR, DP, A15, CU4, CU2, CY2, CY1, AB, DB, CE, CD, DG2, CZ, CY, DG1, CV, DC1, H2,

Info for manual annotations of cluster A15:

- Start number 55 was manually annotated 21 times for cluster A15.

Info for manual annotations of cluster AB:

- Start number 52 was manually annotated 1 time for cluster AB.

Info for manual annotations of cluster CD:

- Start number 54 was manually annotated 2 times for cluster CD.

Info for manual annotations of cluster CE:

- Start number 52 was manually annotated 2 times for cluster CE.

Info for manual annotations of cluster CU4:

- Start number 55 was manually annotated 1 time for cluster CU4.

Info for manual annotations of cluster CV:

- Start number 54 was manually annotated 1 time for cluster CV.

Info for manual annotations of cluster CY:

- Start number 54 was manually annotated 1 time for cluster CY.
- Start number 58 was manually annotated 1 time for cluster CY.

Info for manual annotations of cluster CY1:

- Start number 54 was manually annotated 8 times for cluster CY1.

Info for manual annotations of cluster CY2:

- Start number 54 was manually annotated 1 time for cluster CY2.

Info for manual annotations of cluster CZ:

- Start number 54 was manually annotated 1 time for cluster CZ.

Info for manual annotations of cluster CZ1:

- Start number 55 was manually annotated 1 time for cluster CZ1.

Info for manual annotations of cluster CZ2:

- Start number 50 was manually annotated 9 times for cluster CZ2.
- Start number 54 was manually annotated 10 times for cluster CZ2.

Info for manual annotations of cluster CZ4:

- Start number 36 was manually annotated 1 time for cluster CZ4.
- Start number 54 was manually annotated 18 times for cluster CZ4.

Info for manual annotations of cluster CZ6:

- Start number 54 was manually annotated 3 times for cluster CZ6.



Info for manual annotations of cluster DB:

- Start number 50 was manually annotated 4 times for cluster DB.
- Start number 54 was manually annotated 5 times for cluster DB.

Info for manual annotations of cluster DC1:

- Start number 55 was manually annotated 1 time for cluster DC1.

Info for manual annotations of cluster DG1:

- Start number 53 was manually annotated 1 time for cluster DG1.
- Start number 54 was manually annotated 7 times for cluster DG1.

Info for manual annotations of cluster DG2:

- Start number 53 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DH:

- Start number 54 was manually annotated 2 times for cluster DH.

Info for manual annotations of cluster DK:

- Start number 54 was manually annotated 2 times for cluster DK.

Info for manual annotations of cluster DP:

- Start number 54 was manually annotated 6 times for cluster DP.

Info for manual annotations of cluster DR:

- Start number 38 was manually annotated 1 time for cluster DR.
- Start number 54 was manually annotated 6 times for cluster DR.
- Start number 62 was manually annotated 1 time for cluster DR.

Info for manual annotations of cluster DT:

- Start number 54 was manually annotated 1 time for cluster DT.

Info for manual annotations of cluster DV:

- Start number 53 was manually annotated 2 times for cluster DV.
- Start number 54 was manually annotated 23 times for cluster DV.

Info for manual annotations of cluster H2:

- Start number 52 was manually annotated 2 times for cluster H2.

### **Gene Information:**

Gene: Adora\_21 Start: 19477, Stop: 20586, Start Num: 54

Candidate Starts for Adora\_21:

(35, 19366), (39, 19405), (Start: 54 @19477 has 101 MA's), (67, 19573), (70, 19597), (94, 19789), (95, 19795), (106, 19864), (117, 19954), (118, 19960), (125, 20002), (134, 20026), (137, 20047), (146, 20098), (148, 20122), (153, 20182), (171, 20293), (176, 20320),

Gene: Alyssamiracle\_37 Start: 29523, Stop: 30629, Start Num: 54

Candidate Starts for Alyssamiracle\_37:

(Start: 54 @29523 has 101 MA's), (64, 29580), (71, 29637), (88, 29772), (113, 29934), (114, 29937), (117, 29988), (118, 29994), (131, 30045), (136, 30057), (149, 30159), (150, 30162), (179, 30321),

(195, 30429), (201, 30474), (205, 30501), (223, 30591), (224, 30597), (227, 30612),

Gene: AnClar\_42 Start: 36918, Stop: 38072, Start Num: 54

Candidate Starts for AnClar\_42:

(19, 36564), (Start: 38 @36834 has 1 MA's), (41, 36867), (42, 36873), (Start: 54 @36918 has 101 MA's), (67, 37011), (72, 37047), (86, 37161), (116, 37368), (118, 37401), (136, 37452), (146, 37530), (149, 37554), (178, 37746), (180, 37767), (181, 37776), (184, 37794), (187, 37809), (197, 37890), (214, 37986),

Gene: Anaysia\_12 Start: 5392, Stop: 6432, Start Num: 55

Candidate Starts for Anaysia\_12:

(Start: 55 @5392 has 24 MA's), (65, 5434), (99, 5722), (120, 5872), (128, 5902), (152, 6073), (175, 6193), (180, 6235),

Gene: Annalisa\_21 Start: 18955, Stop: 20055, Start Num: 54

Candidate Starts for Annalisa\_21:

(15, 18526), (17, 18589), (28, 18814), (Start: 54 @18955 has 101 MA's), (Start: 62 @19000 has 1 MA's), (71, 19072), (103, 19330), (118, 19432), (131, 19480), (136, 19492), (139, 19525), (149, 19594), (150, 19597), (172, 19720), (180, 19774), (209, 19960),

Gene: Anon\_10 Start: 5737, Stop: 6777, Start Num: 55

Candidate Starts for Anon\_10:

(Start: 55 @5737 has 24 MA's), (65, 5779), (99, 6067), (120, 6217), (128, 6247), (152, 6418), (180, 6580), (182, 6601),

Gene: Apeppi\_33 Start: 30567, Stop: 31721, Start Num: 54

Candidate Starts for Apeppi\_33:

(Start: 54 @30567 has 101 MA's), (56, 30585), (71, 30684), (114, 30987), (118, 31044), (125, 31080), (126, 31083), (178, 31398), (187, 31461), (209, 31611), (217, 31641), (219, 31650),

Gene: Attis\_18 Start: 16527, Stop: 17654, Start Num: 50

Candidate Starts for Attis\_18:

(Start: 50 @16527 has 13 MA's), (Start: 54 @16545 has 101 MA's), (56, 16563), (59, 16578), (64, 16605), (67, 16641), (70, 16665), (91, 16836), (94, 16857), (95, 16863), (106, 16932), (117, 17022), (118, 17028), (122, 17058), (125, 17070), (137, 17115), (146, 17166), (153, 17250), (157, 17271), (168, 17340), (171, 17361), (176, 17388), (209, 17607),

Gene: Avian\_35 Start: 29505, Stop: 30611, Start Num: 54

Candidate Starts for Avian\_35:

(Start: 54 @29505 has 101 MA's), (64, 29562), (71, 29619), (88, 29754), (113, 29916), (114, 29919), (117, 29970), (118, 29976), (131, 30027), (136, 30039), (149, 30141), (179, 30303), (195, 30411), (201, 30456), (205, 30483), (223, 30573), (224, 30579), (227, 30594),

Gene: Axumite\_41 Start: 34059, Stop: 35276, Start Num: 38

Candidate Starts for Axumite\_41:

(Start: 38 @34059 has 1 MA's), (41, 34092), (Start: 54 @34143 has 101 MA's), (Start: 62 @34188 has 1 MA's), (67, 34236), (71, 34263), (84, 34368), (114, 34566), (118, 34623), (130, 34662), (132, 34668), (133, 34671), (136, 34677), (146, 34755), (156, 34836), (178, 34971), (179, 34974), (181, 35001), (184, 35019), (187, 35034), (197, 35115), (224, 35244), (227, 35259),

Gene: BBQValindra\_21 Start: 18913, Stop: 20022, Start Num: 54

Candidate Starts for BBQValindra\_21:

(Start: 50 @18895 has 13 MA's), (Start: 54 @18913 has 101 MA's), (59, 18946), (64, 18973), (67, 19009), (70, 19033), (94, 19225), (95, 19231), (106, 19300), (117, 19390), (118, 19396), (134, 19462), (137, 19483), (146, 19534), (153, 19618), (157, 19639), (171, 19729), (209, 19975),

Gene: BackstagePass\_21 Start: 19045, Stop: 20154, Start Num: 54

Candidate Starts for BackstagePass\_21:

(33, 18907), (Start: 50 @19027 has 13 MA's), (Start: 54 @19045 has 101 MA's), (59, 19078), (64, 19105), (67, 19141), (70, 19165), (94, 19357), (95, 19363), (106, 19432), (117, 19522), (118, 19528), (125, 19570), (134, 19594), (137, 19615), (146, 19666), (157, 19771), (171, 19861),

Gene: Barnyard\_39 Start: 31341, Stop: 32396, Start Num: 52

Candidate Starts for Barnyard\_39:

(Start: 52 @31341 has 6 MA's), (Start: 62 @31395 has 1 MA's), (64, 31407), (67, 31443), (68, 31452), (78, 31542), (118, 31854), (123, 31887), (143, 31965), (170, 32112), (178, 32160), (180, 32181), (200, 32310), (211, 32370),

Gene: Battleship\_13 Start: 5514, Stop: 6554, Start Num: 55

Candidate Starts for Battleship\_13:

(Start: 55 @5514 has 24 MA's), (65, 5556), (99, 5844), (120, 5994), (128, 6024), (152, 6195), (180, 6357),

Gene: BeeGee\_22 Start: 19669, Stop: 20739, Start Num: 58

Candidate Starts for BeeGee\_22:

(45, 19606), (Start: 54 @19639 has 101 MA's), (Start: 58 @19669 has 1 MA's), (71, 19756), (102, 20011), (118, 20116), (131, 20164), (133, 20170), (136, 20176), (178, 20437), (179, 20440), (180, 20458), (188, 20494), (209, 20644),

Gene: Beenie\_21 Start: 19312, Stop: 20412, Start Num: 54

Candidate Starts for Beenie\_21:

(11, 18814), (15, 18883), (17, 18946), (21, 19087), (28, 19171), (Start: 54 @19312 has 101 MA's), (Start: 62 @19357 has 1 MA's), (71, 19429), (118, 19789), (131, 19837), (136, 19849), (139, 19882), (149, 19951), (150, 19954), (172, 20077), (180, 20131), (209, 20317),

Gene: Beyoncage\_29 Start: 25970, Stop: 27115, Start Num: 54

Candidate Starts for Beyoncage\_29:

(Start: 54 @25970 has 101 MA's), (56, 25988), (68, 26072), (71, 26087), (76, 26150), (92, 26267), (118, 26447), (132, 26498), (136, 26507), (144, 26579), (179, 26804), (185, 26861), (221, 27056),

Gene: BiggityBass\_41 Start: 36386, Stop: 37540, Start Num: 54

Candidate Starts for BiggityBass\_41:

(19, 36035), (Start: 38 @36302 has 1 MA's), (41, 36335), (Start: 54 @36386 has 101 MA's), (67, 36479), (72, 36515), (86, 36629), (116, 36836), (118, 36869), (136, 36920), (146, 36998), (149, 37022), (178, 37214), (180, 37235), (181, 37244), (187, 37277), (197, 37358), (214, 37454),

Gene: BirthdayBoy\_37 Start: 31246, Stop: 32352, Start Num: 54

Candidate Starts for BirthdayBoy\_37:

(Start: 54 @31246 has 101 MA's), (64, 31303), (71, 31360), (88, 31495), (113, 31657), (114, 31660), (118, 31717), (131, 31768), (136, 31780), (144, 31852), (150, 31885), (179, 32044), (223, 32314), (227, 32335),

Gene: BiteSize\_29 Start: 25970, Stop: 27115, Start Num: 54

Candidate Starts for BiteSize\_29:

(Start: 54 @25970 has 101 MA's), (56, 25988), (68, 26072), (71, 26087), (76, 26150), (92, 26267), (118, 26447), (132, 26498), (136, 26507), (144, 26579), (179, 26804), (185, 26861), (221, 27056),

Gene: Bjaner7\_18 Start: 16527, Stop: 17654, Start Num: 50

Candidate Starts for Bjaner7\_18:

(Start: 50 @16527 has 13 MA's), (Start: 54 @16545 has 101 MA's), (56, 16563), (59, 16578), (64, 16605), (67, 16641), (70, 16665), (91, 16836), (94, 16857), (95, 16863), (106, 16932), (117, 17022), (118, 17028), (122, 17058), (125, 17070), (137, 17115), (146, 17166), (153, 17250), (157, 17271), (168, 17340), (171, 17361), (176, 17388), (209, 17607),

Gene: Boohoo\_12 Start: 5392, Stop: 6432, Start Num: 55

Candidate Starts for Boohoo\_12:

(Start: 55 @5392 has 24 MA's), (65, 5434), (99, 5722), (120, 5872), (128, 5902), (152, 6073), (175, 6193), (180, 6235),

Gene: Bradissa\_22 Start: 19825, Stop: 20925, Start Num: 54

Candidate Starts for Bradissa\_22:

(24, 19603), (45, 19792), (Start: 54 @19825 has 101 MA's), (Start: 58 @19855 has 1 MA's), (71, 19942), (102, 20197), (118, 20302), (131, 20350), (136, 20362), (178, 20623), (179, 20626), (180, 20644), (188, 20680), (209, 20830),

Gene: BritBrat\_22 Start: 19678, Stop: 20778, Start Num: 54

Candidate Starts for BritBrat\_22:

(24, 19456), (45, 19645), (Start: 54 @19678 has 101 MA's), (Start: 58 @19708 has 1 MA's), (71, 19795), (92, 19975), (102, 20050), (118, 20155), (131, 20203), (136, 20215), (178, 20476), (179, 20479), (180, 20497), (188, 20533), (209, 20683),

Gene: Bunker\_21 Start: 19006, Stop: 20133, Start Num: 50

Candidate Starts for Bunker\_21:

(45, 18991), (Start: 50 @19006 has 13 MA's), (Start: 54 @19024 has 101 MA's), (59, 19057), (64, 19084), (67, 19120), (70, 19144), (91, 19315), (94, 19336), (95, 19342), (106, 19411), (117, 19501), (118, 19507), (134, 19573), (137, 19594), (146, 19645), (153, 19729), (157, 19750), (171, 19840), (209, 20086),

Gene: Cashline\_22 Start: 19502, Stop: 20608, Start Num: 54

Candidate Starts for Cashline\_22:

(Start: 50 @19484 has 13 MA's), (Start: 54 @19502 has 101 MA's), (67, 19598), (69, 19619), (70, 19622), (94, 19814), (95, 19820), (117, 19979), (118, 19985), (121, 20012), (122, 20015), (127, 20033), (146, 20123), (153, 20207), (157, 20228), (167, 20288), (176, 20342), (209, 20561),

Gene: Clap\_18 Start: 16552, Stop: 17661, Start Num: 54

Candidate Starts for Clap\_18:

(Start: 50 @16534 has 13 MA's), (Start: 54 @16552 has 101 MA's), (59, 16585), (64, 16612), (67, 16648), (70, 16672), (94, 16864), (95, 16870), (106, 16939), (117, 17029), (118, 17035), (122, 17065), (125, 17077), (137, 17122), (146, 17173), (153, 17257), (157, 17278), (168, 17347), (171, 17368), (176, 17395), (209, 17614),

Gene: Clark\_21 Start: 18955, Stop: 20055, Start Num: 54

Candidate Starts for Clark\_21:

(11, 18457), (15, 18526), (17, 18589), (21, 18730), (28, 18814), (Start: 54 @18955 has 101 MA's), (Start: 62 @19000 has 1 MA's), (71, 19072), (118, 19432), (131, 19480), (136, 19492), (139, 19525), (149, 19594), (150, 19597), (172, 19720), (180, 19774), (209, 19960),

Gene: Confidence\_22 Start: 19669, Stop: 20769, Start Num: 54

Candidate Starts for Confidence\_22:

(45, 19636), (Start: 54 @19669 has 101 MA's), (Start: 58 @19699 has 1 MA's), (71, 19786), (102, 20041), (118, 20146), (131, 20194), (133, 20200), (136, 20206), (178, 20467), (179, 20470), (180, 20488), (188, 20524), (209, 20674),

Gene: Cynthia\_18 Start: 16534, Stop: 17661, Start Num: 50

Candidate Starts for Cynthia\_18:

(Start: 50 @16534 has 13 MA's), (Start: 54 @16552 has 101 MA's), (59, 16585), (64, 16612), (67, 16648), (70, 16672), (94, 16864), (95, 16870), (106, 16939), (117, 17029), (118, 17035), (122, 17065), (125, 17077), (137, 17122), (146, 17173), (153, 17257), (168, 17347), (171, 17368), (176, 17395), (209, 17614),

Gene: DekHockey33\_12 Start: 5514, Stop: 6554, Start Num: 55

Candidate Starts for DekHockey33\_12:

(Start: 55 @5514 has 24 MA's), (65, 5556), (99, 5844), (120, 5994), (128, 6024), (152, 6195), (175, 6315), (180, 6357),

Gene: Djokovic\_29 Start: 25969, Stop: 27114, Start Num: 54

Candidate Starts for Djokovic\_29:

(Start: 54 @25969 has 101 MA's), (56, 25987), (68, 26071), (71, 26086), (76, 26149), (92, 26266), (118, 26446), (132, 26497), (136, 26506), (144, 26578), (179, 26803), (185, 26860), (221, 27055),

Gene: Dmitri\_22 Start: 20023, Stop: 21132, Start Num: 54

Candidate Starts for Dmitri\_22:

(Start: 54 @20023 has 101 MA's), (61, 20068), (67, 20119), (69, 20140), (70, 20143), (93, 20326), (94, 20335), (95, 20341), (117, 20500), (118, 20506), (121, 20533), (122, 20536), (127, 20554), (147, 20656), (148, 20668), (153, 20728), (176, 20866), (209, 21085),

Gene: DobbysSock\_20 Start: 18429, Stop: 19529, Start Num: 54

Candidate Starts for DobbysSock\_20:

(15, 18000), (17, 18063), (21, 18204), (28, 18288), (Start: 54 @18429 has 101 MA's), (Start: 62 @18474 has 1 MA's), (71, 18546), (118, 18906), (131, 18954), (136, 18966), (139, 18999), (149, 19068), (150, 19071), (172, 19194), (180, 19248), (209, 19434),

Gene: Dolores\_21 Start: 18931, Stop: 20031, Start Num: 54

Candidate Starts for Dolores\_21:

(11, 18433), (15, 18502), (17, 18565), (21, 18706), (28, 18790), (Start: 54 @18931 has 101 MA's), (Start: 62 @18976 has 1 MA's), (71, 19048), (118, 19408), (131, 19456), (136, 19468), (139, 19501), (149, 19570), (150, 19573), (172, 19696), (180, 19750), (209, 19936),

Gene: DoobyDoo\_35 Start: 30197, Stop: 31303, Start Num: 54

Candidate Starts for DoobyDoo\_35:

(Start: 54 @30197 has 101 MA's), (71, 30311), (88, 30446), (113, 30608), (114, 30611), (118, 30668), (131, 30719), (136, 30731), (144, 30803), (150, 30836), (179, 30995), (201, 31148), (223, 31265), (227, 31286),

Gene: Dorito\_20 Start: 18372, Stop: 19547, Start Num: 36

Candidate Starts for Dorito\_20:

(32, 18333), (Start: 36 @18372 has 1 MA's), (Start: 54 @18447 has 101 MA's), (Start: 62 @18492 has 1 MA's), (71, 18564), (74, 18591), (86, 18684), (103, 18822), (118, 18924), (136, 18984), (149, 19086), (172, 19212), (179, 19248), (180, 19266), (190, 19311), (204, 19425), (209, 19452),

Gene: DrLupo\_41 Start: 31730, Stop: 32785, Start Num: 52

Candidate Starts for DrLupo\_41:

(Start: 52 @31730 has 6 MA's), (64, 31796), (67, 31832), (68, 31841), (78, 31931), (108, 32159), (118, 32243), (123, 32276), (126, 32288), (141, 32348), (164, 32459), (165, 32462), (170, 32501), (178, 32549), (180, 32570), (192, 32636), (200, 32699), (211, 32759),

Gene: DumpTruck\_32 Start: 28578, Stop: 29678, Start Num: 53

Candidate Starts for DumpTruck\_32:

(Start: 53 @28578 has 4 MA's), (64, 28635), (67, 28671), (71, 28692), (84, 28794), (86, 28809), (105, 28953), (106, 28956), (114, 28992), (118, 29049), (136, 29112), (144, 29184), (172, 29340), (179, 29376), (209, 29580), (224, 29649),

Gene: EMSquaredA\_22 Start: 19678, Stop: 20778, Start Num: 54

Candidate Starts for EMSquaredA\_22:

(24, 19456), (45, 19645), (Start: 54 @19678 has 101 MA's), (Start: 58 @19708 has 1 MA's), (71, 19795), (92, 19975), (102, 20050), (118, 20155), (131, 20203), (136, 20215), (178, 20476), (179, 20479), (180, 20497), (188, 20533), (209, 20683),

Gene: Easley\_21 Start: 18941, Stop: 20041, Start Num: 54

Candidate Starts for Easley\_21:

(11, 18443), (15, 18512), (17, 18575), (28, 18800), (Start: 54 @18941 has 101 MA's), (Start: 62 @18986 has 1 MA's), (71, 19058), (118, 19418), (131, 19466), (136, 19478), (139, 19511), (149, 19580), (150, 19583), (172, 19706), (180, 19760), (209, 19946),

Gene: Ebert\_18 Start: 16534, Stop: 17661, Start Num: 50

Candidate Starts for Ebert\_18:

(Start: 50 @16534 has 13 MA's), (Start: 54 @16552 has 101 MA's), (59, 16585), (64, 16612), (67, 16648), (70, 16672), (94, 16864), (95, 16870), (106, 16939), (117, 17029), (118, 17035), (122, 17065), (125, 17077), (137, 17122), (146, 17173), (153, 17257), (157, 17278), (168, 17347), (171, 17368), (176, 17395), (209, 17614),

Gene: EdnaMode\_18 Start: 16489, Stop: 17589, Start Num: 54

Candidate Starts for EdnaMode\_18:

(Start: 54 @16489 has 101 MA's), (Start: 58 @16519 has 1 MA's), (71, 16606), (118, 16966), (131, 17014), (133, 17020), (136, 17026), (178, 17287), (179, 17290), (180, 17308), (188, 17344), (209, 17494),

Gene: EnalisNailo\_22 Start: 19827, Stop: 20927, Start Num: 54

Candidate Starts for EnalisNailo\_22:

(24, 19605), (45, 19794), (Start: 54 @19827 has 101 MA's), (Start: 58 @19857 has 1 MA's), (71, 19944), (102, 20199), (118, 20304), (131, 20352), (136, 20364), (178, 20625), (179, 20628), (180, 20646), (188, 20682), (209, 20832),

Gene: Epsocamisio\_12 Start: 5392, Stop: 6432, Start Num: 55

Candidate Starts for Epsocamisio\_12:

(Start: 55 @5392 has 24 MA's), (65, 5434), (99, 5722), (120, 5872), (128, 5902), (152, 6073), (175, 6193), (180, 6235),

Gene: Erutan\_36 Start: 30705, Stop: 31811, Start Num: 54

Candidate Starts for Erutan\_36:

(Start: 54 @30705 has 101 MA's), (64, 30762), (71, 30819), (88, 30954), (113, 31116), (114, 31119), (118, 31176), (131, 31227), (136, 31239), (144, 31311), (150, 31344), (179, 31503), (223, 31773), (227, 31794),

Gene: Ewald\_24 Start: 20489, Stop: 21616, Start Num: 54

Candidate Starts for Ewald\_24:

(Start: 54 @20489 has 101 MA's), (67, 20585), (82, 20714), (94, 20801), (95, 20807), (101, 20858), (108, 20888), (110, 20912), (112, 20918), (117, 20981), (118, 20987), (123, 21020), (133, 21053), (148, 21152), (153, 21212), (157, 21233), (167, 21293), (171, 21323), (176, 21350),

Gene: Eyes\_21 Start: 18917, Stop: 20026, Start Num: 54

Candidate Starts for Eyes\_21:

(Start: 54 @18917 has 101 MA's), (67, 19013), (69, 19034), (70, 19037), (93, 19220), (94, 19229), (95, 19235), (117, 19394), (118, 19400), (121, 19427), (122, 19430), (127, 19448), (148, 19562), (152, 19616), (153, 19622), (157, 19643), (176, 19760), (209, 19979),

Gene: Eyre\_18 Start: 17160, Stop: 18260, Start Num: 54

Candidate Starts for Eyre\_18:

(49, 17142), (Start: 54 @17160 has 101 MA's), (71, 17277), (92, 17457), (118, 17637), (131, 17685), (133, 17691), (136, 17697), (172, 17925), (178, 17958), (179, 17961), (180, 17979), (209, 18165),

Gene: Faith5x5\_18 Start: 16431, Stop: 17531, Start Num: 54

Candidate Starts for Faith5x5\_18:

(Start: 54 @16431 has 101 MA's), (71, 16548), (102, 16803), (118, 16908), (131, 16956), (133, 16962), (136, 16968), (140, 17007), (179, 17232), (180, 17250), (188, 17286), (209, 17436),

Gene: Finkle\_20 Start: 17870, Stop: 18973, Start Num: 54

Candidate Starts for Finkle\_20:

(44, 17837), (Start: 54 @17870 has 101 MA's), (101, 18260), (118, 18371), (119, 18380), (122, 18401), (159, 18614), (173, 18707), (180, 18764), (188, 18803), (205, 18929), (209, 18953), (211, 18959), (212, 18962),

Gene: Floral\_22 Start: 19678, Stop: 20778, Start Num: 54

Candidate Starts for Floral\_22:

(24, 19456), (45, 19645), (Start: 54 @19678 has 101 MA's), (Start: 58 @19708 has 1 MA's), (71, 19795), (92, 19975), (102, 20050), (118, 20155), (131, 20203), (136, 20215), (178, 20476), (179, 20479), (180, 20497), (188, 20533), (209, 20683),

Gene: Fresco\_41 Start: 34143, Stop: 35276, Start Num: 54

Candidate Starts for Fresco\_41:

(Start: 38 @34059 has 1 MA's), (41, 34092), (Start: 54 @34143 has 101 MA's), (Start: 62 @34188 has 1 MA's), (67, 34236), (71, 34263), (84, 34368), (114, 34566), (118, 34623), (130, 34662), (132, 34668), (133, 34671), (136, 34677), (146, 34755), (156, 34836), (178, 34971), (179, 34974), (181, 35001), (184, 35019), (187, 35034), (197, 35115), (224, 35244), (227, 35259),

Gene: Fryberger\_60 Start: 33704, Stop: 34738, Start Num: 54

Candidate Starts for Fryberger\_60:

(Start: 54 @33704 has 101 MA's), (Start: 58 @33734 has 1 MA's), (85, 33935), (101, 34070), (108, 34100), (118, 34181), (124, 34214), (209, 34727),

Gene: Fulcrum\_37 Start: 31226, Stop: 32332, Start Num: 54

Candidate Starts for Fulcrum\_37:

(Start: 54 @31226 has 101 MA's), (64, 31283), (71, 31340), (88, 31475), (113, 31637), (114, 31640), (118, 31697), (131, 31748), (136, 31760), (144, 31832), (150, 31865), (179, 32024), (223, 32294), (227, 32315),

Gene: GAL1\_22 Start: 19182, Stop: 20282, Start Num: 54

Candidate Starts for GAL1\_22:

(Start: 54 @19182 has 101 MA's), (71, 19299), (86, 19419), (102, 19554), (103, 19557), (118, 19659), (131, 19707), (136, 19719), (140, 19758), (180, 20001), (209, 20187),

Gene: GEazy\_21 Start: 18913, Stop: 20040, Start Num: 50

Candidate Starts for GEazy\_21:

(Start: 50 @18913 has 13 MA's), (Start: 54 @18931 has 101 MA's), (59, 18964), (64, 18991), (67, 19027), (70, 19051), (94, 19243), (95, 19249), (106, 19318), (117, 19408), (118, 19414), (134, 19480), (137, 19501), (146, 19552), (148, 19576), (153, 19636), (157, 19657), (171, 19747), (209, 19993),

Gene: GMA4\_21 Start: 20328, Stop: 21401, Start Num: 55

Candidate Starts for GMA4\_21:

(1, 19251), (3, 19461), (7, 19683), (10, 19740), (12, 19770), (13, 19800), (14, 19809), (18, 19953), (20, 20013), (25, 20073), (30, 20142), (Start: 55 @20328 has 24 MA's), (87, 20568), (115, 20763), (120, 20823), (146, 20961), (178, 21159), (194, 21255), (198, 21306), (210, 21378),

Gene: GOATification\_37 Start: 31226, Stop: 32332, Start Num: 54

Candidate Starts for GOATification\_37:

(Start: 54 @31226 has 101 MA's), (64, 31283), (71, 31340), (88, 31475), (113, 31637), (114, 31640), (118, 31697), (131, 31748), (136, 31760), (144, 31832), (150, 31865), (179, 32024), (223, 32294), (227, 32315),

Gene: GemG\_18 Start: 16552, Stop: 17661, Start Num: 54

Candidate Starts for GemG\_18:

(Start: 50 @16534 has 13 MA's), (Start: 54 @16552 has 101 MA's), (59, 16585), (64, 16612), (67, 16648), (70, 16672), (94, 16864), (95, 16870), (106, 16939), (117, 17029), (118, 17035), (122, 17065), (125, 17077), (137, 17122), (146, 17173), (153, 17257), (157, 17278), (168, 17347), (171, 17368), (176, 17395), (209, 17614),

Gene: Genamy16\_37 Start: 29523, Stop: 30629, Start Num: 54

Candidate Starts for Genamy16\_37:

(Start: 54 @29523 has 101 MA's), (64, 29580), (71, 29637), (88, 29772), (100, 29871), (113, 29934), (114, 29937), (117, 29988), (118, 29994), (131, 30045), (136, 30057), (149, 30159), (179, 30321), (195, 30429), (201, 30474), (205, 30501), (223, 30591), (224, 30597), (227, 30612),

Gene: Gibbin\_37 Start: 31324, Stop: 32430, Start Num: 54

Candidate Starts for Gibbin\_37:

(Start: 54 @31324 has 101 MA's), (64, 31381), (71, 31438), (88, 31573), (113, 31735), (114, 31738), (118, 31795), (131, 31846), (136, 31858), (144, 31930), (150, 31963), (179, 32122), (223, 32392), (227, 32413),

Gene: Gizermo\_18 Start: 16534, Stop: 17661, Start Num: 50

Candidate Starts for Gizermo\_18:

(Start: 50 @16534 has 13 MA's), (Start: 54 @16552 has 101 MA's), (59, 16585), (64, 16612), (67, 16648), (70, 16672), (94, 16864), (95, 16870), (106, 16939), (117, 17029), (118, 17035), (122, 17065), (125, 17077), (137, 17122), (146, 17173), (153, 17257), (157, 17278), (168, 17347), (171, 17368), (176, 17395), (209, 17614),

Gene: GodonK\_97 Start: 58933, Stop: 59997, Start Num: 54

Candidate Starts for GodonK\_97:

(51, 58921), (Start: 54 @58933 has 101 MA's), (113, 59350), (118, 59410), (123, 59443), (146, 59563), (164, 59680), (172, 59737), (178, 59770), (206, 59959),



Gene: GretellYn\_36 Start: 31590, Stop: 32696, Start Num: 54

Candidate Starts for GretellYn\_36:

(Start: 54 @31590 has 101 MA's), (71, 31704), (88, 31839), (113, 32001), (114, 32004), (118, 32061), (131, 32112), (136, 32124), (144, 32196), (150, 32229), (179, 32388), (223, 32658), (227, 32679),

Gene: Gspu1\_21 Start: 17048, Stop: 18142, Start Num: 48

Candidate Starts for Gspu1\_21:

(40, 17009), (48, 17048), (56, 17093), (64, 17132), (65, 17135), (73, 17207), (80, 17288), (84, 17300), (97, 17399), (98, 17414), (104, 17444), (120, 17567), (121, 17573), (128, 17597), (129, 17600), (138, 17660), (175, 17882), (180, 17924), (188, 17960), (202, 18056), (206, 18080), (215, 18125),

Gene: Gudmit\_19 Start: 17314, Stop: 18414, Start Num: 54

Candidate Starts for Gudmit\_19:

(Start: 54 @17314 has 101 MA's), (57, 17341), (Start: 62 @17359 has 1 MA's), (71, 17431), (74, 17458), (118, 17791), (136, 17851), (149, 17953), (172, 18079), (180, 18133), (187, 18166), (188, 18169),

Gene: Guey18\_66 Start: 35224, Stop: 36258, Start Num: 54

Candidate Starts for Guey18\_66:

(Start: 54 @35224 has 101 MA's), (57, 35251), (Start: 58 @35254 has 1 MA's), (85, 35455), (101, 35590), (108, 35620), (118, 35701), (124, 35734), (209, 36247),

Gene: Haley23\_18 Start: 16552, Stop: 17661, Start Num: 54

Candidate Starts for Haley23\_18:

(Start: 50 @16534 has 13 MA's), (Start: 54 @16552 has 101 MA's), (59, 16585), (64, 16612), (67, 16648), (70, 16672), (94, 16864), (95, 16870), (106, 16939), (117, 17029), (118, 17035), (122, 17065), (125, 17077), (137, 17122), (146, 17173), (153, 17257), (157, 17278), (168, 17347), (171, 17368), (176, 17395), (209, 17614),

Gene: HannahD\_21 Start: 18913, Stop: 20040, Start Num: 50

Candidate Starts for HannahD\_21:

(Start: 50 @18913 has 13 MA's), (Start: 54 @18931 has 101 MA's), (59, 18964), (64, 18991), (67, 19027), (70, 19051), (94, 19243), (95, 19249), (106, 19318), (117, 19408), (118, 19414), (134, 19480), (137, 19501), (146, 19552), (148, 19576), (153, 19636), (157, 19657), (171, 19747), (209, 19993),

Gene: Hortense\_21 Start: 19524, Stop: 20633, Start Num: 54

Candidate Starts for Hortense\_21:

(35, 19413), (39, 19452), (Start: 54 @19524 has 101 MA's), (67, 19620), (70, 19644), (94, 19836), (95, 19842), (106, 19911), (117, 20001), (118, 20007), (125, 20049), (134, 20073), (137, 20094), (146, 20145), (148, 20169), (153, 20229), (171, 20340), (176, 20367),

Gene: Howe\_21 Start: 19524, Stop: 20633, Start Num: 54

Candidate Starts for Howe\_21:

(35, 19413), (39, 19452), (Start: 54 @19524 has 101 MA's), (67, 19620), (70, 19644), (94, 19836), (95, 19842), (106, 19911), (117, 20001), (118, 20007), (125, 20049), (134, 20073), (137, 20094), (146, 20145), (148, 20169), (153, 20229), (171, 20340), (176, 20367),

Gene: JCole\_18 Start: 16546, Stop: 17646, Start Num: 54

Candidate Starts for JCole\_18:

(Start: 54 @16546 has 101 MA's), (71, 16663), (92, 16843), (118, 17023), (131, 17071), (133, 17077), (136, 17083), (172, 17311), (178, 17344), (179, 17347), (180, 17365), (188, 17401), (209, 17551),

Gene: JSwag\_12 Start: 5392, Stop: 6426, Start Num: 55

Candidate Starts for JSwag\_12:

(Start: 55 @5392 has 24 MA's), (65, 5434), (99, 5722), (120, 5872), (128, 5902), (152, 6073), (175, 6193), (180, 6235),

Gene: Jalebi\_35 Start: 31759, Stop: 32865, Start Num: 54

Candidate Starts for Jalebi\_35:

(Start: 54 @31759 has 101 MA's), (71, 31873), (88, 32008), (113, 32170), (114, 32173), (118, 32230), (131, 32281), (136, 32293), (144, 32365), (150, 32398), (179, 32557), (223, 32827), (227, 32848),

Gene: KatherineG\_12 Start: 5514, Stop: 6554, Start Num: 55

Candidate Starts for KatherineG\_12:

(Start: 55 @5514 has 24 MA's), (65, 5556), (99, 5844), (120, 5994), (128, 6024), (152, 6195), (175, 6315), (180, 6357),

Gene: Keelan\_58 Start: 33969, Stop: 34979, Start Num: 54

Candidate Starts for Keelan\_58:

(Start: 54 @33969 has 101 MA's), (Start: 58 @33999 has 1 MA's), (85, 34200), (118, 34446), (124, 34479), (179, 34761), (199, 34911), (209, 34968),

Gene: Lamberg\_18 Start: 16489, Stop: 17589, Start Num: 54

Candidate Starts for Lamberg\_18:

(Start: 54 @16489 has 101 MA's), (71, 16606), (92, 16786), (118, 16966), (131, 17014), (133, 17020), (136, 17026), (178, 17287), (179, 17290), (180, 17308), (188, 17344), (209, 17494),

Gene: Lambo\_36 Start: 31244, Stop: 32350, Start Num: 54

Candidate Starts for Lambo\_36:

(Start: 54 @31244 has 101 MA's), (64, 31301), (71, 31358), (88, 31493), (113, 31655), (114, 31658), (118, 31715), (131, 31766), (136, 31778), (144, 31850), (150, 31883), (179, 32042), (201, 32195), (223, 32312), (227, 32333),

Gene: LastResort\_12 Start: 5392, Stop: 6432, Start Num: 55

Candidate Starts for LastResort\_12:

(Start: 55 @5392 has 24 MA's), (65, 5434), (99, 5722), (120, 5872), (128, 5902), (152, 6073), (175, 6193), (180, 6235),

Gene: Ligma\_41 Start: 34188, Stop: 35276, Start Num: 62

Candidate Starts for Ligma\_41:

(Start: 38 @34059 has 1 MA's), (41, 34092), (Start: 54 @34143 has 101 MA's), (Start: 62 @34188 has 1 MA's), (67, 34236), (71, 34263), (84, 34368), (114, 34566), (118, 34623), (130, 34662), (132, 34668), (133, 34671), (136, 34677), (146, 34755), (156, 34836), (178, 34971), (179, 34974), (181, 35001), (184, 35019), (187, 35034), (197, 35115), (224, 35244), (227, 35259),

Gene: Lila22\_37 Start: 31199, Stop: 32305, Start Num: 54

Candidate Starts for Lila22\_37:

(Start: 54 @31199 has 101 MA's), (64, 31256), (71, 31313), (88, 31448), (113, 31610), (114, 31613), (118, 31670), (131, 31721), (136, 31733), (144, 31805), (150, 31838), (179, 31997), (223, 32267), (227, 32288),

Gene: Lilas\_22 Start: 19827, Stop: 20927, Start Num: 54

Candidate Starts for Lilas\_22:

(24, 19605), (45, 19794), (Start: 54 @19827 has 101 MA's), (Start: 58 @19857 has 1 MA's), (71, 19944), (102, 20199), (118, 20304), (131, 20352), (136, 20364), (178, 20625), (179, 20628), (180,

20646), (188, 20682), (209, 20832),

Gene: LilyPad\_31 Start: 26814, Stop: 27920, Start Num: 53

Candidate Starts for LilyPad\_31:

(Start: 53 @26814 has 4 MA's), (64, 26874), (71, 26931), (86, 27048), (105, 27192), (106, 27195), (118, 27288), (136, 27351), (144, 27423), (149, 27453), (179, 27615), (190, 27678), (220, 27864), (225, 27897),

Gene: LittleFella\_32 Start: 28760, Stop: 29866, Start Num: 53

Candidate Starts for LittleFella\_32:

(Start: 53 @28760 has 4 MA's), (64, 28817), (71, 28874), (86, 28994), (118, 29234), (131, 29285), (136, 29297), (144, 29369), (179, 29561), (202, 29717), (219, 29804), (225, 29843),

Gene: LittleMunchkin\_43 Start: 37407, Stop: 38561, Start Num: 54

Candidate Starts for LittleMunchkin\_43:

(39, 37335), (Start: 54 @37407 has 101 MA's), (67, 37500), (72, 37536), (86, 37650), (113, 37830), (118, 37890), (136, 37941), (146, 38019), (156, 38100), (172, 38190), (180, 38256), (181, 38265), (197, 38379), (214, 38475), (228, 38550),

Gene: Looper\_13 Start: 5392, Stop: 6432, Start Num: 55

Candidate Starts for Looper\_13:

(Start: 55 @5392 has 24 MA's), (65, 5434), (99, 5722), (120, 5872), (128, 5902), (152, 6073), (175, 6193), (180, 6235),

Gene: LordFarquaad\_18 Start: 16545, Stop: 17654, Start Num: 54

Candidate Starts for LordFarquaad\_18:

(Start: 50 @16527 has 13 MA's), (Start: 54 @16545 has 101 MA's), (56, 16563), (59, 16578), (64, 16605), (67, 16641), (70, 16665), (91, 16836), (94, 16857), (95, 16863), (106, 16932), (117, 17022), (118, 17028), (122, 17058), (125, 17070), (137, 17115), (146, 17166), (153, 17250), (157, 17271), (168, 17340), (171, 17361), (176, 17388), (209, 17607),

Gene: Lton\_18 Start: 16518, Stop: 17618, Start Num: 54

Candidate Starts for Lton\_18:

(Start: 54 @16518 has 101 MA's), (71, 16635), (92, 16815), (118, 16995), (131, 17043), (133, 17049), (136, 17055), (172, 17283), (179, 17319), (180, 17337), (188, 17373), (209, 17523),

Gene: LuckyLeo\_35 Start: 30567, Stop: 31721, Start Num: 54

Candidate Starts for LuckyLeo\_35:

(Start: 54 @30567 has 101 MA's), (56, 30585), (71, 30684), (114, 30987), (118, 31044), (125, 31080), (126, 31083), (178, 31398), (187, 31461), (209, 31611), (217, 31641), (219, 31650),

Gene: Madi\_29 Start: 25970, Stop: 27115, Start Num: 54

Candidate Starts for Madi\_29:

(Start: 54 @25970 has 101 MA's), (56, 25988), (68, 26072), (71, 26087), (92, 26267), (118, 26447), (132, 26498), (136, 26507), (144, 26579), (179, 26804), (185, 26861), (221, 27056),

Gene: MagicMan\_21 Start: 19237, Stop: 20346, Start Num: 54

Candidate Starts for MagicMan\_21:

(Start: 50 @19219 has 13 MA's), (Start: 54 @19237 has 101 MA's), (67, 19333), (69, 19354), (70, 19357), (94, 19549), (95, 19555), (117, 19714), (118, 19720), (121, 19747), (122, 19750), (127, 19768), (153, 19942), (157, 19963), (209, 20299),

Gene: Marteenaa\_22 Start: 19678, Stop: 20778, Start Num: 54

Candidate Starts for Marteena\_22:

(24, 19456), (45, 19645), (Start: 54 @19678 has 101 MA's), (Start: 58 @19708 has 1 MA's), (71, 19795), (92, 19975), (102, 20050), (118, 20155), (131, 20203), (136, 20215), (178, 20476), (179, 20479), (180, 20497), (188, 20533), (209, 20683),

Gene: Mcklovin\_21 Start: 21693, Stop: 22802, Start Num: 54

Candidate Starts for Mcklovin\_21:

(35, 21582), (39, 21621), (Start: 54 @21693 has 101 MA's), (67, 21789), (70, 21813), (94, 22005), (95, 22011), (106, 22080), (117, 22170), (118, 22176), (125, 22218), (134, 22242), (137, 22263), (146, 22314), (148, 22338), (153, 22398), (171, 22509), (176, 22536),

Gene: MichaelScott\_21 Start: 19312, Stop: 20412, Start Num: 54

Candidate Starts for MichaelScott\_21:

(11, 18814), (15, 18883), (17, 18946), (21, 19087), (28, 19171), (Start: 54 @19312 has 101 MA's), (Start: 62 @19357 has 1 MA's), (71, 19429), (118, 19789), (131, 19837), (136, 19849), (139, 19882), (149, 19951), (150, 19954), (172, 20077), (180, 20131), (209, 20317),

Gene: MinecraftSteve\_13 Start: 5514, Stop: 6554, Start Num: 55

Candidate Starts for MinecraftSteve\_13:

(Start: 55 @5514 has 24 MA's), (65, 5556), (99, 5844), (120, 5994), (128, 6024), (152, 6195), (175, 6315), (180, 6357),

Gene: Mocha12\_18 Start: 16552, Stop: 17661, Start Num: 54

Candidate Starts for Mocha12\_18:

(Start: 50 @16534 has 13 MA's), (Start: 54 @16552 has 101 MA's), (59, 16585), (64, 16612), (67, 16648), (70, 16672), (94, 16864), (95, 16870), (106, 16939), (117, 17029), (118, 17035), (122, 17065), (125, 17077), (137, 17122), (146, 17173), (153, 17257), (157, 17278), (168, 17347), (171, 17368), (176, 17395), (209, 17614),

Gene: MoiGyank\_40 Start: 31629, Stop: 32735, Start Num: 54

Candidate Starts for MoiGyank\_40:

(Start: 54 @31629 has 101 MA's), (71, 31743), (88, 31878), (113, 32040), (114, 32043), (118, 32100), (131, 32151), (136, 32163), (144, 32235), (150, 32268), (179, 32427), (223, 32697), (227, 32718),

Gene: Moosehead\_18 Start: 16438, Stop: 17538, Start Num: 54

Candidate Starts for Moosehead\_18:

(32, 16303), (45, 16405), (Start: 54 @16438 has 101 MA's), (71, 16555), (86, 16675), (102, 16810), (103, 16813), (118, 16915), (131, 16963), (133, 16969), (136, 16975), (140, 17014), (178, 17236), (179, 17239), (180, 17257), (182, 17278), (209, 17443),

Gene: Morkie\_20 Start: 17311, Stop: 18411, Start Num: 54

Candidate Starts for Morkie\_20:

(23, 17068), (46, 17281), (Start: 54 @17311 has 101 MA's), (71, 17428), (82, 17527), (92, 17608), (118, 17788), (131, 17836), (133, 17842), (136, 17848), (140, 17887), (172, 18076), (178, 18109), (179, 18112), (180, 18130), (188, 18166), (209, 18316),

Gene: Nebulosus\_12 Start: 5392, Stop: 6432, Start Num: 55

Candidate Starts for Nebulosus\_12:

(Start: 55 @5392 has 24 MA's), (65, 5434), (99, 5722), (120, 5872), (128, 5902), (152, 6073), (175, 6193), (180, 6235),

Gene: Nedarya\_11 Start: 5992, Stop: 7026, Start Num: 55

Candidate Starts for Nedarya\_11:

(Start: 55 @5992 has 24 MA's), (65, 6034), (99, 6322), (120, 6472), (128, 6502), (152, 6673), (180, 6835),

Gene: Nettuno\_18 Start: 16492, Stop: 17592, Start Num: 54

Candidate Starts for Nettuno\_18:

(Start: 54 @16492 has 101 MA's), (71, 16609), (118, 16969), (131, 17017), (133, 17023), (136, 17029), (140, 17068), (172, 17257), (178, 17290), (179, 17293), (180, 17311), (188, 17347), (209, 17497),

Gene: NiceHouse\_51 Start: 23181, Stop: 24578, Start Num: 52

Candidate Starts for NiceHouse\_51:

(Start: 52 @23181 has 6 MA's), (69, 23301), (70, 23304), (71, 23307), (77, 23385), (89, 23469), (96, 23523), (145, 23808), (170, 23946), (187, 24048), (188, 24051), (190, 24060), (193, 24084), (202, 24156), (216, 24249), (231, 24438), (232, 24534), (233, 24540),

Gene: NoShow\_26 Start: 23358, Stop: 24416, Start Num: 52

Candidate Starts for NoShow\_26:

(37, 23277), (Start: 52 @23358 has 6 MA's), (Start: 58 @23397 has 1 MA's), (67, 23460), (82, 23583), (85, 23598), (102, 23763), (107, 23778), (118, 23871), (123, 23904), (170, 24135), (174, 24162), (178, 24180), (180, 24201), (200, 24330),

Gene: NorManre\_37 Start: 30832, Stop: 31941, Start Num: 54

Candidate Starts for NorManre\_37:

(Start: 54 @30832 has 101 MA's), (64, 30892), (71, 30949), (86, 31066), (106, 31213), (113, 31246), (114, 31249), (118, 31306), (131, 31357), (136, 31369), (144, 31441), (150, 31474), (179, 31633), (223, 31903), (227, 31924),

Gene: NovaSharks\_36 Start: 29113, Stop: 30219, Start Num: 54

Candidate Starts for NovaSharks\_36:

(Start: 54 @29113 has 101 MA's), (64, 29170), (71, 29227), (88, 29362), (113, 29524), (114, 29527), (117, 29578), (118, 29584), (131, 29635), (136, 29647), (149, 29749), (150, 29752), (179, 29911), (195, 30019), (201, 30064), (205, 30091), (223, 30181), (224, 30187), (227, 30202),

Gene: OneDirection\_18 Start: 16457, Stop: 17557, Start Num: 54

Candidate Starts for OneDirection\_18:

(32, 16304), (Start: 54 @16457 has 101 MA's), (71, 16574), (92, 16754), (114, 16877), (118, 16934), (131, 16982), (136, 16994), (172, 17222), (178, 17255), (179, 17258), (180, 17276), (188, 17312), (209, 17462), (224, 17528),

Gene: Oofda\_13 Start: 5370, Stop: 6404, Start Num: 55

Candidate Starts for Oofda\_13:

(Start: 55 @5370 has 24 MA's), (65, 5412), (99, 5700), (120, 5850), (128, 5880), (152, 6051), (180, 6213),

Gene: Opie\_21 Start: 19244, Stop: 20371, Start Num: 50

Candidate Starts for Opie\_21:

(22, 19001), (27, 19076), (29, 19091), (34, 19142), (Start: 50 @19244 has 13 MA's), (Start: 54 @19262 has 101 MA's), (59, 19295), (64, 19322), (67, 19358), (70, 19382), (91, 19553), (94, 19574), (95, 19580), (106, 19649), (117, 19739), (118, 19745), (134, 19811), (137, 19832), (153, 19967), (157, 19988), (171, 20078), (209, 20324),

Gene: Oregano\_21 Start: 18977, Stop: 20077, Start Num: 54

Candidate Starts for Oregano\_21:

(11, 18479), (15, 18548), (17, 18611), (21, 18752), (28, 18836), (Start: 54 @18977 has 101 MA's), (Start: 62 @19022 has 1 MA's), (71, 19094), (118, 19454), (131, 19502), (136, 19514), (139, 19547), (149, 19616), (150, 19619), (172, 19742), (180, 19796), (209, 19982),

Gene: OtterstedtS21\_36 Start: 30906, Stop: 32012, Start Num: 54

Candidate Starts for OtterstedtS21\_36:

(Start: 54 @30906 has 101 MA's), (71, 31020), (88, 31155), (113, 31317), (114, 31320), (118, 31377), (131, 31428), (136, 31440), (144, 31512), (150, 31545), (179, 31704), (223, 31974), (227, 31995),

Gene: ParvusTarda\_36 Start: 30374, Stop: 31480, Start Num: 54

Candidate Starts for ParvusTarda\_36:

(Start: 54 @30374 has 101 MA's), (64, 30431), (71, 30488), (88, 30623), (113, 30785), (114, 30788), (118, 30845), (131, 30896), (136, 30908), (144, 30980), (150, 31013), (179, 31172), (223, 31442), (227, 31463),

Gene: Patos\_37 Start: 30832, Stop: 31941, Start Num: 54

Candidate Starts for Patos\_37:

(Start: 54 @30832 has 101 MA's), (64, 30892), (71, 30949), (86, 31066), (106, 31213), (113, 31246), (114, 31249), (118, 31306), (131, 31357), (136, 31369), (144, 31441), (150, 31474), (179, 31633), (223, 31903), (227, 31924),

Gene: Penjamin420\_38 Start: 31047, Stop: 32156, Start Num: 54

Candidate Starts for Penjamin420\_38:

(Start: 54 @31047 has 101 MA's), (64, 31107), (71, 31164), (86, 31281), (106, 31428), (113, 31461), (114, 31464), (118, 31521), (131, 31572), (136, 31584), (144, 31656), (150, 31689), (179, 31848), (201, 32001), (223, 32118), (227, 32139),

Gene: Petra\_22 Start: 18743, Stop: 19855, Start Num: 54

Candidate Starts for Petra\_22:

(Start: 54 @18743 has 101 MA's), (67, 18839), (70, 18863), (83, 18971), (94, 19055), (95, 19061), (101, 19112), (111, 19166), (117, 19235), (118, 19241), (123, 19274), (133, 19307), (209, 19808),

Gene: Phendrix\_93 Start: 59176, Stop: 60240, Start Num: 54

Candidate Starts for Phendrix\_93:

(51, 59164), (Start: 54 @59176 has 101 MA's), (81, 59389), (85, 59407), (113, 59593), (118, 59653), (123, 59686), (146, 59806), (154, 59878), (164, 59923), (172, 59980), (178, 60013), (206, 60202),

Gene: PhorbesPhlower\_20 Start: 17311, Stop: 18411, Start Num: 54

Candidate Starts for PhorbesPhlower\_20:

(23, 17068), (46, 17281), (Start: 54 @17311 has 101 MA's), (71, 17428), (82, 17527), (92, 17608), (118, 17788), (131, 17836), (133, 17842), (136, 17848), (140, 17887), (172, 18076), (178, 18109), (179, 18112), (180, 18130), (188, 18166), (209, 18316),

Gene: PhriskyACE\_20 Start: 18447, Stop: 19547, Start Num: 54

Candidate Starts for PhriskyACE\_20:

(32, 18333), (Start: 36 @18372 has 1 MA's), (Start: 54 @18447 has 101 MA's), (Start: 62 @18492 has 1 MA's), (71, 18564), (74, 18591), (86, 18684), (103, 18822), (118, 18924), (136, 18984), (149, 19086), (172, 19212), (179, 19248), (180, 19266), (190, 19311), (204, 19425), (209, 19452),

Gene: Pollux\_22 Start: 19678, Stop: 20778, Start Num: 54

Candidate Starts for Pollux\_22:

(24, 19456), (45, 19645), (Start: 54 @19678 has 101 MA's), (Start: 58 @19708 has 1 MA's), (71, 19795), (92, 19975), (102, 20050), (118, 20155), (131, 20203), (136, 20215), (178, 20476), (179,

20479), (180, 20497), (188, 20533), (209, 20683),

Gene: Polly\_20 Start: 19454, Stop: 20509, Start Num: 55

Candidate Starts for Polly\_20:

(49, 19424), (Start: 55 @19454 has 24 MA's), (65, 19496), (69, 19544), (120, 19934), (128, 19964), (129, 19967), (150, 20099), (151, 20120), (166, 20210),

Gene: Ranch\_36 Start: 29732, Stop: 30838, Start Num: 54

Candidate Starts for Ranch\_36:

(Start: 54 @29732 has 101 MA's), (71, 29846), (88, 29981), (113, 30143), (114, 30146), (118, 30203), (131, 30254), (136, 30266), (144, 30338), (150, 30371), (179, 30530), (223, 30800), (227, 30821),

Gene: ReMo\_12 Start: 5392, Stop: 6432, Start Num: 55

Candidate Starts for ReMo\_12:

(Start: 55 @5392 has 24 MA's), (65, 5434), (99, 5722), (120, 5872), (128, 5902), (152, 6073), (175, 6193), (180, 6235),

Gene: Remus\_12 Start: 5360, Stop: 6394, Start Num: 55

Candidate Starts for Remus\_12:

(Start: 55 @5360 has 24 MA's), (65, 5402), (99, 5690), (120, 5840), (128, 5870), (152, 6041), (180, 6203),

Gene: Ronaldo\_63 Start: 34603, Stop: 35637, Start Num: 54

Candidate Starts for Ronaldo\_63:

(Start: 54 @34603 has 101 MA's), (Start: 58 @34633 has 1 MA's), (85, 34834), (101, 34969), (108, 34999), (118, 35080), (124, 35113), (209, 35626),

Gene: Rosalind\_12 Start: 5514, Stop: 6554, Start Num: 55

Candidate Starts for Rosalind\_12:

(Start: 55 @5514 has 24 MA's), (65, 5556), (99, 5844), (120, 5994), (128, 6024), (152, 6195), (180, 6357),

Gene: Rumi\_36 Start: 29116, Stop: 30222, Start Num: 54

Candidate Starts for Rumi\_36:

(Start: 54 @29116 has 101 MA's), (64, 29173), (71, 29230), (88, 29365), (113, 29527), (114, 29530), (117, 29581), (118, 29587), (131, 29638), (136, 29650), (149, 29752), (150, 29755), (179, 29914), (195, 30022), (201, 30067), (205, 30094), (223, 30184), (224, 30190), (227, 30205),

Gene: Sadboi\_37 Start: 31591, Stop: 32697, Start Num: 54

Candidate Starts for Sadboi\_37:

(Start: 54 @31591 has 101 MA's), (71, 31705), (88, 31840), (113, 32002), (114, 32005), (118, 32062), (131, 32113), (136, 32125), (144, 32197), (150, 32230), (179, 32389), (223, 32659), (227, 32680),

Gene: Sahara\_18 Start: 16560, Stop: 17687, Start Num: 50

Candidate Starts for Sahara\_18:

(Start: 50 @16560 has 13 MA's), (Start: 54 @16578 has 101 MA's), (59, 16611), (64, 16638), (67, 16674), (70, 16698), (94, 16890), (95, 16896), (106, 16965), (117, 17055), (118, 17061), (122, 17091), (125, 17103), (137, 17148), (146, 17199), (153, 17283), (157, 17304), (168, 17373), (171, 17394), (176, 17421), (209, 17640),

Gene: Samman98\_21 Start: 18946, Stop: 20046, Start Num: 54

Candidate Starts for Samman98\_21:

(11, 18448), (15, 18517), (17, 18580), (21, 18721), (28, 18805), (Start: 54 @18946 has 101 MA's), (Start: 62 @18991 has 1 MA's), (71, 19063), (118, 19423), (131, 19471), (136, 19483), (139, 19516), (149, 19585), (150, 19588), (172, 19711), (180, 19765), (209, 19951),

Gene: Sampudon\_36 Start: 31759, Stop: 32865, Start Num: 54

Candidate Starts for Sampudon\_36:

(Start: 54 @31759 has 101 MA's), (71, 31873), (88, 32008), (113, 32170), (114, 32173), (118, 32230), (131, 32281), (136, 32293), (144, 32365), (150, 32398), (179, 32557), (223, 32827), (227, 32848),

Gene: Savage\_18 Start: 16534, Stop: 17661, Start Num: 50

Candidate Starts for Savage\_18:

(Start: 50 @16534 has 13 MA's), (Start: 54 @16552 has 101 MA's), (59, 16585), (64, 16612), (67, 16648), (70, 16672), (94, 16864), (95, 16870), (106, 16939), (117, 17029), (118, 17035), (122, 17065), (125, 17077), (137, 17122), (146, 17173), (153, 17257), (168, 17347), (171, 17368), (176, 17395), (209, 17614),

Gene: Schmidt\_21 Start: 16046, Stop: 17080, Start Num: 55

Candidate Starts for Schmidt\_21:

(Start: 55 @16046 has 24 MA's), (60, 16064), (63, 16076), (65, 16088), (69, 16136), (70, 16139), (80, 16241), (84, 16253), (120, 16526), (128, 16556), (135, 16580), (151, 16700), (161, 16757), (162, 16763), (163, 16769), (169, 16808), (175, 16838), (177, 16850), (178, 16859), (180, 16880), (213, 17075),

Gene: Schnabeltier\_21 Start: 19238, Stop: 20347, Start Num: 54

Candidate Starts for Schnabeltier\_21:

(Start: 50 @19220 has 13 MA's), (Start: 54 @19238 has 101 MA's), (67, 19334), (69, 19355), (70, 19358), (94, 19550), (95, 19556), (117, 19715), (118, 19721), (121, 19748), (122, 19751), (127, 19769), (153, 19943), (157, 19964), (209, 20300),

Gene: Sekhmet\_21 Start: 19306, Stop: 20406, Start Num: 54

Candidate Starts for Sekhmet\_21:

(9, 18787), (11, 18808), (15, 18877), (17, 18940), (28, 19165), (Start: 54 @19306 has 101 MA's), (Start: 62 @19351 has 1 MA's), (71, 19423), (103, 19681), (118, 19783), (131, 19831), (136, 19843), (139, 19876), (149, 19945), (150, 19948), (172, 20071), (180, 20125), (209, 20311),

Gene: Shatter\_41 Start: 34188, Stop: 35276, Start Num: 62

Candidate Starts for Shatter\_41:

(Start: 38 @34059 has 1 MA's), (41, 34092), (Start: 54 @34143 has 101 MA's), (Start: 62 @34188 has 1 MA's), (67, 34236), (71, 34263), (84, 34368), (114, 34566), (118, 34623), (130, 34662), (132, 34668), (133, 34671), (136, 34677), (146, 34755), (156, 34836), (178, 34971), (179, 34974), (181, 35001), (184, 35019), (187, 35034), (197, 35115), (224, 35244), (227, 35259),

Gene: ShayRa\_13 Start: 5514, Stop: 6554, Start Num: 55

Candidate Starts for ShayRa\_13:

(Start: 55 @5514 has 24 MA's), (65, 5556), (99, 5844), (120, 5994), (128, 6024), (152, 6195), (175, 6315), (180, 6357),

Gene: Shlim410\_21 Start: 19524, Stop: 20633, Start Num: 54

Candidate Starts for Shlim410\_21:

(35, 19413), (39, 19452), (Start: 54 @19524 has 101 MA's), (67, 19620), (70, 19644), (94, 19836), (95, 19842), (106, 19911), (117, 20001), (118, 20007), (125, 20049), (134, 20073), (137, 20094), (146, 20145), (148, 20169), (153, 20229), (171, 20340), (176, 20367),



Gene: Sienna\_29 Start: 25970, Stop: 27115, Start Num: 54

Candidate Starts for Sienna\_29:

(Start: 54 @25970 has 101 MA's), (56, 25988), (68, 26072), (71, 26087), (92, 26267), (118, 26447), (132, 26498), (136, 26507), (144, 26579), (179, 26804), (185, 26861), (221, 27056),

Gene: Sisko\_41 Start: 34922, Stop: 36076, Start Num: 54

Candidate Starts for Sisko\_41:

(19, 34568), (Start: 38 @34838 has 1 MA's), (41, 34871), (42, 34877), (Start: 54 @34922 has 101 MA's), (67, 35015), (72, 35051), (86, 35165), (116, 35372), (118, 35405), (136, 35456), (146, 35534), (149, 35558), (178, 35750), (180, 35771), (181, 35780), (184, 35798), (187, 35813), (197, 35894), (214, 35990),

Gene: Sleepyhead\_20 Start: 17954, Stop: 19021, Start Num: 52

Candidate Starts for Sleepyhead\_20:

(31, 17792), (Start: 52 @17954 has 6 MA's), (118, 18449), (122, 18479), (131, 18512), (153, 18674), (191, 18875),

Gene: SoilAssassin\_18 Start: 16527, Stop: 17654, Start Num: 50

Candidate Starts for SoilAssassin\_18:

(Start: 50 @16527 has 13 MA's), (Start: 54 @16545 has 101 MA's), (56, 16563), (59, 16578), (64, 16605), (67, 16641), (70, 16665), (91, 16836), (94, 16857), (95, 16863), (106, 16932), (117, 17022), (118, 17028), (122, 17058), (125, 17070), (137, 17115), (146, 17166), (153, 17250), (157, 17271), (168, 17340), (171, 17361), (176, 17388), (209, 17607),

Gene: Soups\_12 Start: 5514, Stop: 6554, Start Num: 55

Candidate Starts for Soups\_12:

(Start: 55 @5514 has 24 MA's), (65, 5556), (99, 5844), (120, 5994), (128, 6024), (152, 6195), (175, 6315), (180, 6357),

Gene: Sour\_46 Start: 38789, Stop: 39943, Start Num: 54

Candidate Starts for Sour\_46:

(43, 38750), (47, 38759), (Start: 54 @38789 has 101 MA's), (67, 38882), (72, 38918), (86, 39032), (116, 39239), (118, 39272), (136, 39323), (139, 39356), (146, 39401), (155, 39479), (156, 39482), (178, 39617), (180, 39638), (184, 39665), (197, 39764), (225, 39926),

Gene: Sproutie\_18 Start: 16552, Stop: 17661, Start Num: 54

Candidate Starts for Sproutie\_18:

(Start: 50 @16534 has 13 MA's), (Start: 54 @16552 has 101 MA's), (59, 16585), (64, 16612), (67, 16648), (70, 16672), (94, 16864), (95, 16870), (106, 16939), (117, 17029), (118, 17035), (122, 17065), (125, 17077), (137, 17122), (146, 17173), (153, 17257), (168, 17347), (171, 17368), (176, 17395), (209, 17614),

Gene: Strosahl\_12 Start: 5360, Stop: 6394, Start Num: 55

Candidate Starts for Strosahl\_12:

(Start: 55 @5360 has 24 MA's), (65, 5402), (99, 5690), (120, 5840), (128, 5870), (152, 6041), (180, 6203),

Gene: Suerte\_19 Start: 18436, Stop: 19536, Start Num: 54

Candidate Starts for Suerte\_19:

(32, 18322), (Start: 36 @18361 has 1 MA's), (Start: 54 @18436 has 101 MA's), (Start: 62 @18481 has 1 MA's), (71, 18553), (74, 18580), (86, 18673), (103, 18811), (118, 18913), (136, 18973), (149, 19075), (172, 19201), (179, 19237), (180, 19255), (187, 19288), (188, 19291),

Gene: Suzy\_29 Start: 27111, Stop: 28256, Start Num: 54

Candidate Starts for Suzy\_29:

(Start: 54 @27111 has 101 MA's), (56, 27129), (68, 27213), (71, 27228), (92, 27408), (118, 27588), (133, 27642), (136, 27648), (144, 27720), (179, 27945), (185, 28002), (221, 28197),

Gene: Switzerland\_12 Start: 5514, Stop: 6554, Start Num: 55

Candidate Starts for Switzerland\_12:

(Start: 55 @5514 has 24 MA's), (65, 5556), (99, 5844), (120, 5994), (128, 6024), (152, 6195), (180, 6357),

Gene: TPA4\_31 Start: 28502, Stop: 29614, Start Num: 54

Candidate Starts for TPA4\_31:

(Start: 54 @28502 has 101 MA's), (57, 28529), (66, 28574), (116, 28970), (117, 28997), (118, 29003), (134, 29072), (156, 29234), (160, 29255), (172, 29330), (178, 29378), (180, 29399), (187, 29435), (188, 29438), (202, 29540),

Gene: TaronosaurusRx\_21 Start: 19258, Stop: 20367, Start Num: 54

Candidate Starts for TaronosaurusRx\_21:

(Start: 50 @19240 has 13 MA's), (Start: 54 @19258 has 101 MA's), (59, 19291), (64, 19318), (67, 19354), (70, 19378), (91, 19549), (94, 19570), (95, 19576), (106, 19645), (117, 19735), (118, 19741), (134, 19807), (146, 19879), (153, 19963), (157, 19984), (171, 20074), (209, 20320),

Gene: Terapin\_30 Start: 25971, Stop: 27116, Start Num: 54

Candidate Starts for Terapin\_30:

(Start: 54 @25971 has 101 MA's), (56, 25989), (68, 26073), (71, 26088), (76, 26151), (92, 26268), (118, 26448), (132, 26499), (136, 26508), (144, 26580), (179, 26805), (185, 26862), (221, 27057),

Gene: Thimann\_21 Start: 18904, Stop: 20004, Start Num: 54

Candidate Starts for Thimann\_21:

(15, 18475), (28, 18763), (Start: 54 @18904 has 101 MA's), (71, 19021), (103, 19279), (113, 19321), (118, 19381), (131, 19429), (136, 19441), (139, 19474), (149, 19543), (150, 19546), (172, 19669), (180, 19723),

Gene: Tillicus\_36 Start: 30161, Stop: 31315, Start Num: 54

Candidate Starts for Tillicus\_36:

(Start: 54 @30161 has 101 MA's), (56, 30179), (71, 30278), (114, 30581), (118, 30638), (125, 30674), (126, 30677), (144, 30770), (172, 30947), (185, 31052), (209, 31205), (217, 31235), (219, 31244),

Gene: TinyDot\_21 Start: 16935, Stop: 18035, Start Num: 54

Candidate Starts for TinyDot\_21:

(Start: 54 @16935 has 101 MA's), (71, 17052), (92, 17232), (118, 17412), (131, 17460), (133, 17466), (136, 17472), (172, 17700), (178, 17733), (179, 17736), (180, 17754), (188, 17790), (209, 17940),

Gene: Trina\_61 Start: 26883, Stop: 28274, Start Num: 52

Candidate Starts for Trina\_61:

(Start: 52 @26883 has 6 MA's), (75, 27075), (79, 27102), (89, 27171), (106, 27291), (108, 27303), (109, 27309), (151, 27561), (170, 27651), (189, 27756), (196, 27813), (207, 27888), (229, 28023), (230, 28104),

Gene: Trine\_20 Start: 16859, Stop: 18004, Start Num: 54

Candidate Starts for Trine\_20:

(Start: 54 @16859 has 101 MA's), (Start: 62 @16904 has 1 MA's), (64, 16916), (71, 16979), (114, 17282), (118, 17339), (149, 17498), (181, 17720), (190, 17762), (224, 17972),

Gene: TuertoX\_18 Start: 16534, Stop: 17661, Start Num: 50

Candidate Starts for TuertoX\_18:

(Start: 50 @16534 has 13 MA's), (Start: 54 @16552 has 101 MA's), (59, 16585), (64, 16612), (67, 16648), (70, 16672), (94, 16864), (95, 16870), (106, 16939), (117, 17029), (118, 17035), (122, 17065), (125, 17077), (137, 17122), (146, 17173), (153, 17257), (168, 17347), (171, 17368), (176, 17395), (209, 17614),

Gene: Twinkle\_21 Start: 20583, Stop: 21692, Start Num: 54

Candidate Starts for Twinkle\_21:

(35, 20472), (39, 20511), (Start: 54 @20583 has 101 MA's), (67, 20679), (70, 20703), (94, 20895), (95, 20901), (106, 20970), (117, 21060), (118, 21066), (125, 21108), (134, 21132), (137, 21153), (146, 21204), (148, 21228), (153, 21288), (171, 21399), (176, 21426),

Gene: Upyo\_20 Start: 17042, Stop: 18220, Start Num: 54

Candidate Starts for Upyo\_20:

(Start: 54 @17042 has 101 MA's), (66, 17114), (113, 17465), (117, 17519), (118, 17525), (136, 17585), (150, 17690), (164, 17780), (179, 17870), (183, 17912), (186, 17939), (202, 18044), (203, 18050), (218, 18146), (222, 18176), (226, 18200),

Gene: VanLee\_28 Start: 24067, Stop: 25176, Start Num: 54

Candidate Starts for VanLee\_28:

(2, 23158), (4, 23359), (5, 23401), (6, 23416), (8, 23470), (16, 23593), (26, 23854), (51, 24055), (Start: 54 @24067 has 101 MA's), (Start: 58 @24097 has 1 MA's), (69, 24178), (90, 24340), (113, 24484), (118, 24544), (123, 24577), (133, 24598), (134, 24601), (139, 24643), (142, 24658), (149, 24700), (172, 24853), (178, 24898), (200, 25051), (208, 25099),

Gene: Volt\_63 Start: 34767, Stop: 35801, Start Num: 54

Candidate Starts for Volt\_63:

(Start: 54 @34767 has 101 MA's), (Start: 58 @34797 has 1 MA's), (85, 34998), (101, 35133), (108, 35163), (118, 35244), (124, 35277), (209, 35790),

Gene: Waits\_12 Start: 5366, Stop: 6400, Start Num: 55

Candidate Starts for Waits\_12:

(Start: 55 @5366 has 24 MA's), (65, 5408), (99, 5696), (120, 5846), (128, 5876), (152, 6047), (180, 6209),

Gene: Whiteclaw\_18 Start: 16552, Stop: 17661, Start Num: 54

Candidate Starts for Whiteclaw\_18:

(Start: 50 @16534 has 13 MA's), (Start: 54 @16552 has 101 MA's), (59, 16585), (64, 16612), (67, 16648), (70, 16672), (94, 16864), (95, 16870), (106, 16939), (117, 17029), (118, 17035), (122, 17065), (125, 17077), (137, 17122), (146, 17173), (153, 17257), (168, 17347), (171, 17368), (176, 17395), (209, 17614),

Gene: WinkNick\_21 Start: 18931, Stop: 20031, Start Num: 54

Candidate Starts for WinkNick\_21:

(11, 18433), (15, 18502), (17, 18565), (21, 18706), (28, 18790), (Start: 54 @18931 has 101 MA's), (Start: 62 @18976 has 1 MA's), (71, 19048), (118, 19408), (131, 19456), (136, 19468), (139, 19501), (149, 19570), (150, 19573), (172, 19696), (180, 19750), (209, 19936),

Gene: Wojtek\_35 Start: 30458, Stop: 31564, Start Num: 54

Candidate Starts for Wojtek\_35:

(Start: 54 @30458 has 101 MA's), (64, 30515), (71, 30572), (88, 30707), (113, 30869), (114, 30872), (118, 30929), (131, 30980), (136, 30992), (144, 31064), (150, 31097), (179, 31256), (223, 31526), (227, 31547),

Gene: Xenia2\_33 Start: 28623, Stop: 29723, Start Num: 53

Candidate Starts for Xenia2\_33:

(Start: 53 @28623 has 4 MA's), (64, 28680), (67, 28716), (71, 28737), (84, 28839), (86, 28854), (105, 28998), (106, 29001), (113, 29034), (114, 29037), (118, 29094), (136, 29157), (141, 29202), (172, 29385), (179, 29421), (209, 29625), (224, 29694),

Gene: Yago84\_41 Start: 34996, Stop: 36150, Start Num: 54

Candidate Starts for Yago84\_41:

(19, 34642), (Start: 38 @34912 has 1 MA's), (41, 34945), (42, 34951), (Start: 54 @34996 has 101 MA's), (67, 35089), (72, 35125), (86, 35239), (116, 35446), (118, 35479), (136, 35530), (146, 35608), (149, 35632), (178, 35824), (180, 35845), (181, 35854), (184, 35872), (197, 35968), (214, 36064),

Gene: Yeet412\_18 Start: 16545, Stop: 17654, Start Num: 54

Candidate Starts for Yeet412\_18:

(Start: 50 @16527 has 13 MA's), (Start: 54 @16545 has 101 MA's), (56, 16563), (59, 16578), (64, 16605), (67, 16641), (70, 16665), (91, 16836), (94, 16857), (95, 16863), (106, 16932), (117, 17022), (118, 17028), (122, 17058), (125, 17070), (137, 17115), (146, 17166), (153, 17250), (157, 17271), (168, 17340), (171, 17361), (176, 17388), (209, 17607),

Gene: Yikes\_37 Start: 31838, Stop: 32944, Start Num: 54

Candidate Starts for Yikes\_37:

(Start: 54 @31838 has 101 MA's), (64, 31895), (71, 31952), (88, 32087), (113, 32249), (114, 32252), (118, 32309), (131, 32360), (136, 32372), (144, 32444), (150, 32477), (179, 32636), (223, 32906), (227, 32927),

Gene: YungMoney\_42 Start: 36228, Stop: 37283, Start Num: 55

Candidate Starts for YungMoney\_42:

(Start: 55 @36228 has 24 MA's), (65, 36270), (99, 36558), (120, 36708), (128, 36738), (134, 36768), (138, 36807), (151, 36894), (166, 36984),

Gene: Zany\_35 Start: 31363, Stop: 32469, Start Num: 54

Candidate Starts for Zany\_35:

(Start: 54 @31363 has 101 MA's), (64, 31420), (71, 31477), (88, 31612), (113, 31774), (114, 31777), (118, 31834), (131, 31885), (136, 31897), (144, 31969), (150, 32002), (158, 32071), (179, 32161), (223, 32431), (227, 32452),

Gene: Ziko\_63 Start: 34589, Stop: 35623, Start Num: 54

Candidate Starts for Ziko\_63:

(Start: 54 @34589 has 101 MA's), (Start: 58 @34619 has 1 MA's), (85, 34820), (101, 34955), (108, 34985), (118, 35066), (124, 35099), (209, 35612),