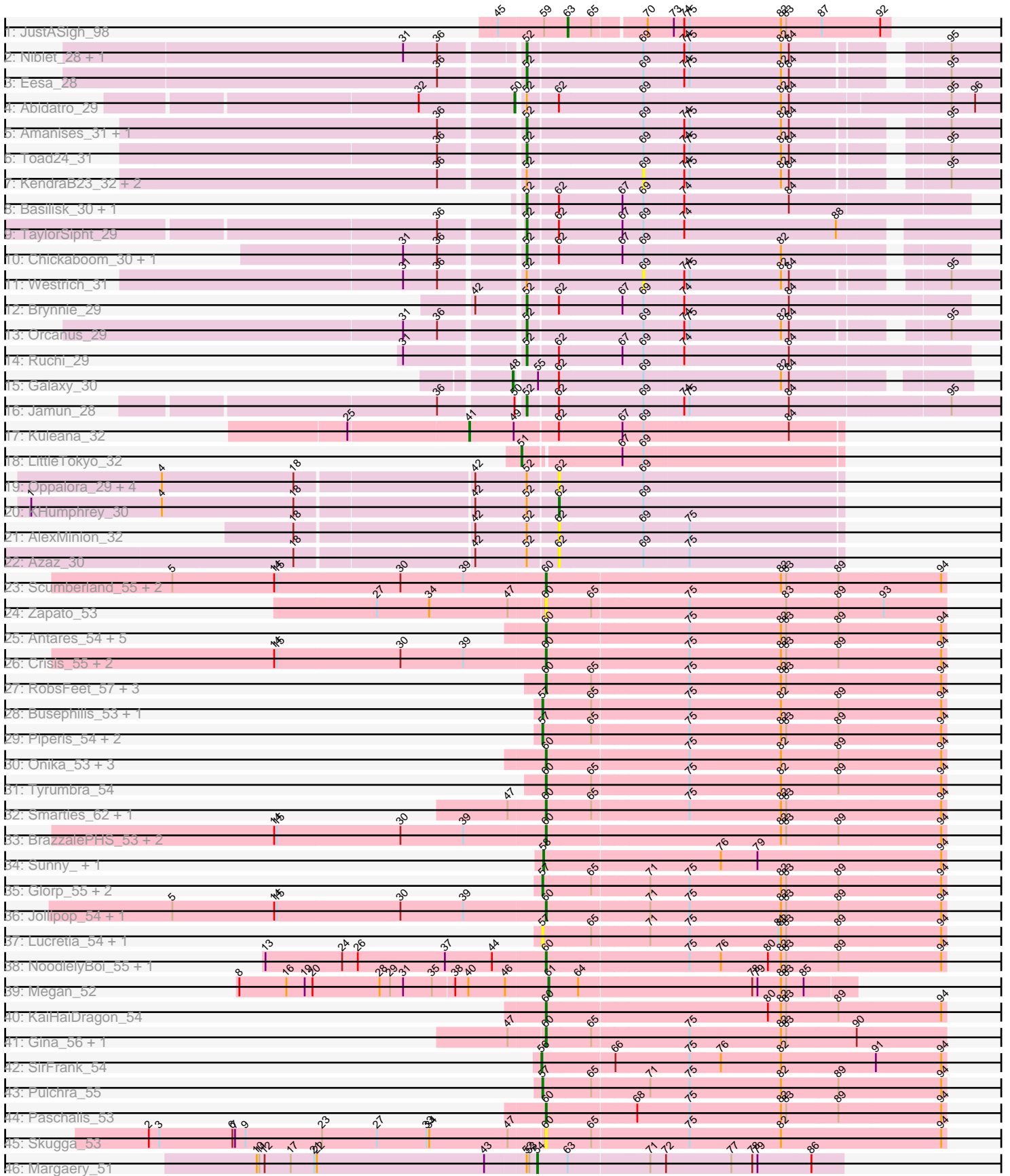


Pham 301294



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 301294 Report

This analysis was run 06/08/26 on database version 649.

Pham number 301294 has 84 members, 18 are drafts.

Phages represented in each track:

- Track 1 : JustASigh\_98
- Track 2 : Niblet\_28, Chicken\_28
- Track 3 : Eesa\_28
- Track 4 : Abidatro\_29
- Track 5 : Amanises\_31, Zixiang\_28
- Track 6 : Toad24\_31
- Track 7 : KendraB23\_32, Gravel\_31, Pelletreau\_31
- Track 8 : Basilisk\_30, Vulpecula\_29
- Track 9 : TaylorSipht\_29
- Track 10 : Chickaboom\_30, WileyE\_30
- Track 11 : Westrich\_31
- Track 12 : Brynnie\_29
- Track 13 : Orcanus\_29
- Track 14 : Ruchi\_29
- Track 15 : Galaxy\_30
- Track 16 : Jamun\_28
- Track 17 : Kuleana\_32
- Track 18 : LittleTokyo\_32
- Track 19 : Oppalora\_29, Laphuphu24k\_29, Rattail\_30, AdoptaAdorbs\_29, Camara\_30
- Track 20 : KHumphrey\_30
- Track 21 : AlexMinion\_32
- Track 22 : Azaz\_30
- Track 23 : Scumberland\_55, Cranjis\_55, LittleFortune\_55
- Track 24 : Zapato\_53
- Track 25 : Antares\_54, Quhwah\_57, BeagleBug\_53, Shotgun\_53, Savannah\_53, PhedwardCullen\_53
- Track 26 : Crisis\_55, CrazyRich\_53, Jefe\_54
- Track 27 : RobsFeet\_57, Metamorphoo\_56, Fireman\_56, Shrubaron\_56
- Track 28 : Busephilis\_53, Phrancesco\_54
- Track 29 : Piperis\_54, Phorgeous\_53, Ganandorf\_53
- Track 30 : Onika\_53, PiperSansNom\_54, Hermeonysus\_53, Rockwell\_53
- Track 31 : Tyumbra\_54
- Track 32 : Smarties\_62, Ariadne\_62
- Track 33 : BrazzalePHS\_53, Ramiel05\_53, Kowalski\_53
- Track 34 : Sunny\_, Merry\_
- Track 35 : Glorp\_55, Honeyfin\_55, Yeti\_54

- Track 36 : Jollipop\_54, PierreOrion\_54
- Track 37 : Lucretia\_54, Germa\_55
- Track 38 : NoodlelyBoi\_55, ClearAsMud\_57
- Track 39 : Megan\_52
- Track 40 : KaiHaiDragon\_54
- Track 41 : Gina\_56, Teamocil\_56
- Track 42 : SirFrank\_54
- Track 43 : Pulchra\_55
- Track 44 : Paschalis\_53
- Track 45 : Skugga\_53
- Track 46 : Margaery\_51

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

The start number called the most often in the published annotations is 60, it was called in 31 of the 66 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Antares\_54, Ariadne\_62, BeagleBug\_53, BrazzalePHS\_53, ClearAsMud\_57, Cranjjs\_55, CrazyRich\_53, Crisis\_55, Fireman\_56, Gina\_56, Hermeonysus\_53, Jefe\_54, Jollipop\_54, KaiHaiDragon\_54, Kowalski\_53, LittleFortune\_55, Metamorphoo\_56, NoodlelyBoi\_55, Onika\_53, Paschalis\_53, PhedwardCullen\_53, PierreOrion\_54, PiperSansNom\_54, Quhwah\_57, Ramiel05\_53, RobsFeet\_57, Rockwell\_53, Savannah\_53, Scumberland\_55, Shotgun\_53, Shrubaron\_56, Skugga\_53, Smarties\_62, Teamocil\_56, Tyrumbra\_54, Zapato\_53,

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

- 

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

- Abidatro\_29, AdoptaAdorbs\_29, AlexMinion\_32, Amanises\_31, Azaz\_30, Basilisk\_30, Brynnie\_29, Busephilis\_53, Camara\_30, Chickaboom\_30, Chicken\_28, Eesa\_28, Galaxy\_30, Ganandorf\_53, Germa\_55, Glorp\_55, Gravel\_31, Honeyfin\_55, Jamun\_28, JustASigh\_98, KHumphrey\_30, KendraB23\_32, Kuleana\_32, Laphuphu24k\_29, LittleTokyo\_32, Lucretia\_54, Margaery\_51, Megan\_52, Merry\_, Niblet\_28, Oppalora\_29, Orcanus\_29, Pelletreau\_31, Phorgeous\_53, Phrancesco\_54, Piperis\_54, Pulchra\_55, Rattail\_30, Ruchi\_29, SirFrank\_54, Sunny\_, TaylorSipht\_29, Toad24\_31, Vulpecula\_29, Westrich\_31, WileyE\_30, Yeti\_54, Zixiang\_28,

**Summary by start number:**

Start 41:

- Found in 1 of 84 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 66
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kuleana\_32 (AS2),

Start 48:

- Found in 1 of 84 ( 1.2% ) of genes in pham

- Manual Annotations of this start: 1 of 66
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Galaxy\_30 (AS1),

Start 50:

- Found in 2 of 84 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 1 of 66
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Abidatro\_29 (AS1),

Start 51:

- Found in 1 of 84 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 66
- Called 100.0% of time when present
- Phage (with cluster) where this start called: LittleTokyo\_32 (AS2),

Start 52:

- Found in 29 of 84 ( 34.5% ) of genes in pham
- Manual Annotations of this start: 15 of 66
- Called 51.7% of time when present
- Phage (with cluster) where this start called: Amanises\_31 (AS1), Basilisk\_30 (AS1), Brynnie\_29 (AS1), Chickaboom\_30 (AS1), Chicken\_28 (AS1), Eesa\_28 (AS1), Jamun\_28 (AS1), Niblet\_28 (AS1), Orcanus\_29 (AS1), Ruchi\_29 (AS1), TaylorSipt\_29 (AS1), Toad24\_31 (AS1), Vulpecula\_29 (AS1), WileyE\_30 (AS1), Zixiang\_28 (AS1),

Start 54:

- Found in 1 of 84 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 66
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Margaery\_51 (EI),

Start 56:

- Found in 1 of 84 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 66
- Called 100.0% of time when present
- Phage (with cluster) where this start called: SirFrank\_54 (EC),

Start 57:

- Found in 11 of 84 ( 13.1% ) of genes in pham
- Manual Annotations of this start: 9 of 66
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Busephilis\_53 (EC), Ganandorf\_53 (EC), Germa\_55 (EC), Glorp\_55 (EC), Honeyfin\_55 (EC), Lucretia\_54 (EC), Phorgeous\_53 (EC), Phrancesco\_54 (EC), Piperis\_54 (EC), Pulchra\_55 (EC), Yeti\_54 (EC),

Start 58:

- Found in 2 of 84 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 2 of 66
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Merry\_ (EC), Sunny\_ (EC),

Start 60:

- Found in 36 of 84 ( 42.9% ) of genes in pham
- Manual Annotations of this start: 31 of 66
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Antares\_54 (EC), Ariadne\_62 (EC), BeagleBug\_53 (EC), BrazzalePHS\_53 (EC), ClearAsMud\_57 (EC), Cranjis\_55 (EC), CrazyRich\_53 (EC), Crisis\_55 (EC), Fireman\_56 (EC), Gina\_56 (EC), Hermeonysus\_53 (EC), Jefe\_54 (EC), Jollipop\_54 (EC), KaiHaiDragon\_54 (EC), Kowalski\_53 (EC), LittleFortune\_55 (EC), Metamorphoo\_56 (EC), NoodlelyBoi\_55 (EC), Onika\_53 (EC), Paschalis\_53 (EC), PhedwardCullen\_53 (EC), PierreOrion\_54 (EC), PiperSansNom\_54 (EC), Quhwah\_57 (EC), Ramiel05\_53 (EC), RobsFeet\_57 (EC), Rockwell\_53 (EC), Savannah\_53 (EC), Scumberland\_55 (EC), Shotgun\_53 (EC), Shrubaron\_56 (EC), Skugga\_53 (EC), Smarties\_62 (EC), Teamocil\_56 (EC), Tyumbra\_54 (EC), Zapato\_53 (EC),

Start 61:

- Found in 1 of 84 ( 1.2% ) of genes in pham
- Manual Annotations of this start: 1 of 66
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Megan\_52 (EC),

Start 62:

- Found in 19 of 84 ( 22.6% ) of genes in pham
- Manual Annotations of this start: 1 of 66
- Called 42.1% of time when present
- Phage (with cluster) where this start called: AdoptaAdorbs\_29 (AS3), AlexMinion\_32 (AS3), Azaz\_30 (AS3), Camara\_30 (AS3), KHumphrey\_30 (AS3), Laphuphu24k\_29 (AS3), Oppalora\_29 (AS3), Rattail\_30 (AS3),

Start 63:

- Found in 2 of 84 ( 2.4% ) of genes in pham
- Manual Annotations of this start: 1 of 66
- Called 50.0% of time when present
- Phage (with cluster) where this start called: JustASigh\_98 (AH),

Start 69:

- Found in 31 of 84 ( 36.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 12.9% of time when present
- Phage (with cluster) where this start called: Gravel\_31 (AS1), KendraB23\_32 (AS1), Pelletreau\_31 (AS1), Westrich\_31 (AS1),

### Summary by clusters:

There are 6 clusters represented in this pham: AS3, AS2, AS1, EI, AH, EC,

Info for manual annotations of cluster AH:

- Start number 63 was manually annotated 1 time for cluster AH.

Info for manual annotations of cluster AS1:

- Start number 48 was manually annotated 1 time for cluster AS1.
- Start number 50 was manually annotated 1 time for cluster AS1.
- Start number 52 was manually annotated 15 times for cluster AS1.

Info for manual annotations of cluster AS2:

- Start number 41 was manually annotated 1 time for cluster AS2.
- Start number 51 was manually annotated 1 time for cluster AS2.

Info for manual annotations of cluster AS3:

- Start number 62 was manually annotated 1 time for cluster AS3.

Info for manual annotations of cluster EC:

- Start number 56 was manually annotated 1 time for cluster EC.
- Start number 57 was manually annotated 9 times for cluster EC.
- Start number 58 was manually annotated 2 times for cluster EC.
- Start number 60 was manually annotated 31 times for cluster EC.
- Start number 61 was manually annotated 1 time for cluster EC.

Info for manual annotations of cluster EI:

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

### **Gene Information:**

Gene: Abidatro\_29 Start: 21393, Stop: 20860, Start Num: 50

Candidate Starts for Abidatro\_29:

(32, 21495), (Start: 50 @21393 has 1 MA's), (Start: 52 @21390 has 15 MA's), (Start: 62 @21357 has 1 MA's), (69, 21261), (82, 21105), (84, 21096), (95, 20922), (96, 20895),

Gene: AdoptaAdorbs\_29 Start: 20838, Stop: 20518, Start Num: 62

Candidate Starts for AdoptaAdorbs\_29:

(4, 21273), (18, 21123), (42, 20928), (Start: 52 @20871 has 15 MA's), (Start: 62 @20838 has 1 MA's), (69, 20742),

Gene: AlexMinion\_32 Start: 21027, Stop: 20707, Start Num: 62

Candidate Starts for AlexMinion\_32:

(18, 21312), (42, 21117), (Start: 52 @21060 has 15 MA's), (Start: 62 @21027 has 1 MA's), (69, 20931), (75, 20880),

Gene: Amanises\_31 Start: 22263, Stop: 21769, Start Num: 52

Candidate Starts for Amanises\_31:

(36, 22350), (Start: 52 @22263 has 15 MA's), (69, 22134), (74, 22089), (75, 22083), (82, 21978), (84, 21969), (95, 21822),

Gene: Antares\_54 Start: 35918, Stop: 36367, Start Num: 60

Candidate Starts for Antares\_54:

(Start: 60 @35918 has 31 MA's), (75, 36077), (82, 36182), (83, 36188), (89, 36245), (94, 36362),

Gene: Ariadne\_62 Start: 37502, Stop: 37951, Start Num: 60

Candidate Starts for Ariadne\_62:

(47, 37460), (Start: 60 @37502 has 31 MA's), (65, 37553), (75, 37661), (82, 37766), (83, 37772), (94, 37946),

Gene: Azaz\_30 Start: 20910, Stop: 20590, Start Num: 62

Candidate Starts for Azaz\_30:

(18, 21195), (42, 21000), (Start: 52 @20943 has 15 MA's), (Start: 62 @20910 has 1 MA's), (69, 20814), (75, 20763),

Gene: Basilisk\_30 Start: 22338, Stop: 21847, Start Num: 52

Candidate Starts for Basilisk\_30:

(Start: 52 @22338 has 15 MA's), (Start: 62 @22305 has 1 MA's), (67, 22233), (69, 22209), (74, 22164), (84, 22044),

Gene: BeagleBug\_53 Start: 35699, Stop: 36148, Start Num: 60

Candidate Starts for BeagleBug\_53:

(Start: 60 @35699 has 31 MA's), (75, 35858), (82, 35963), (83, 35969), (89, 36026), (94, 36143),

Gene: BrazzalePHS\_53 Start: 35714, Stop: 36163, Start Num: 60

Candidate Starts for BrazzalePHS\_53:

(14, 35405), (15, 35408), (30, 35549), (39, 35621), (Start: 60 @35714 has 31 MA's), (82, 35978), (83, 35984), (89, 36041), (94, 36158),

Gene: Brynnie\_29 Start: 22216, Stop: 21725, Start Num: 52

Candidate Starts for Brynnie\_29:

(42, 22267), (Start: 52 @22216 has 15 MA's), (Start: 62 @22183 has 1 MA's), (67, 22111), (69, 22087), (74, 22042), (84, 21922),

Gene: Busephilis\_53 Start: 35622, Stop: 36074, Start Num: 57

Candidate Starts for Busephilis\_53:

(Start: 57 @35622 has 9 MA's), (65, 35676), (75, 35784), (82, 35889), (89, 35952), (94, 36069),

Gene: Camara\_30 Start: 20839, Stop: 20519, Start Num: 62

Candidate Starts for Camara\_30:

(4, 21274), (18, 21124), (42, 20929), (Start: 52 @20872 has 15 MA's), (Start: 62 @20839 has 1 MA's), (69, 20743),

Gene: Chickaboom\_30 Start: 21353, Stop: 20883, Start Num: 52

Candidate Starts for Chickaboom\_30:

(31, 21479), (36, 21440), (Start: 52 @21353 has 15 MA's), (Start: 62 @21320 has 1 MA's), (67, 21248), (69, 21224), (82, 21068),

Gene: Chicken\_28 Start: 21668, Stop: 21147, Start Num: 52

Candidate Starts for Chicken\_28:

(31, 21791), (36, 21752), (Start: 52 @21668 has 15 MA's), (69, 21539), (74, 21494), (75, 21488), (82, 21383), (84, 21374), (95, 21227),

Gene: ClearAsMud\_57 Start: 36175, Stop: 36624, Start Num: 60

Candidate Starts for ClearAsMud\_57:

(13, 35857), (24, 35944), (26, 35962), (37, 36061), (44, 36115), (Start: 60 @36175 has 31 MA's), (75, 36334), (76, 36370), (80, 36424), (82, 36439), (83, 36445), (89, 36502), (94, 36619),

Gene: Cranjis\_55 Start: 35873, Stop: 36322, Start Num: 60

Candidate Starts for Cranjis\_55:

(5, 35447), (14, 35564), (15, 35567), (30, 35708), (39, 35780), (Start: 60 @35873 has 31 MA's), (82, 36137), (83, 36143), (89, 36200), (94, 36317),

Gene: CrazyRich\_53 Start: 35682, Stop: 36131, Start Num: 60

Candidate Starts for CrazyRich\_53:

(14, 35373), (15, 35376), (30, 35517), (39, 35589), (Start: 60 @35682 has 31 MA's), (75, 35841), (82, 35946), (83, 35952), (89, 36009), (94, 36126),

Gene: Crisis\_55 Start: 35673, Stop: 36122, Start Num: 60

Candidate Starts for Crisis\_55:

(14, 35364), (15, 35367), (30, 35508), (39, 35580), (Start: 60 @35673 has 31 MA's), (75, 35832), (82, 35937), (83, 35943), (89, 36000), (94, 36117),

Gene: Eesa\_28 Start: 22106, Stop: 21612, Start Num: 52

Candidate Starts for Eesa\_28:

(36, 22193), (Start: 52 @22106 has 15 MA's), (69, 21977), (74, 21932), (75, 21926), (82, 21821), (84, 21812), (95, 21665),

Gene: Fireman\_56 Start: 37569, Stop: 38018, Start Num: 60

Candidate Starts for Fireman\_56:

(Start: 60 @37569 has 31 MA's), (65, 37620), (75, 37728), (82, 37833), (83, 37839), (94, 38013),

Gene: Galaxy\_30 Start: 21976, Stop: 21491, Start Num: 48

Candidate Starts for Galaxy\_30:

(Start: 48 @21976 has 1 MA's), (55, 21955), (Start: 62 @21931 has 1 MA's), (69, 21835), (82, 21679), (84, 21670),

Gene: Ganandorf\_53 Start: 35703, Stop: 36155, Start Num: 57

Candidate Starts for Ganandorf\_53:

(Start: 57 @35703 has 9 MA's), (65, 35757), (75, 35865), (82, 35970), (83, 35976), (89, 36033), (94, 36150),

Gene: Germa\_55 Start: 35532, Stop: 35984, Start Num: 57

Candidate Starts for Germa\_55:

(Start: 57 @35532 has 9 MA's), (65, 35586), (71, 35649), (75, 35694), (81, 35796), (82, 35799), (83, 35805), (89, 35862), (94, 35979),

Gene: Gina\_56 Start: 35677, Stop: 36126, Start Num: 60

Candidate Starts for Gina\_56:

(47, 35638), (Start: 60 @35677 has 31 MA's), (65, 35728), (75, 35836), (82, 35941), (83, 35947), (90, 36025),

Gene: Glorp\_55 Start: 35704, Stop: 36156, Start Num: 57

Candidate Starts for Glorp\_55:

(Start: 57 @35704 has 9 MA's), (65, 35758), (71, 35821), (75, 35866), (82, 35971), (83, 35977), (89, 36034), (94, 36151),

Gene: Gravel\_31 Start: 21946, Stop: 21581, Start Num: 69

Candidate Starts for Gravel\_31:

(36, 22162), (Start: 52 @22075 has 15 MA's), (69, 21946), (74, 21901), (75, 21895), (82, 21790), (84, 21781), (95, 21634),

Gene: Hermeonysus\_53 Start: 35602, Stop: 36051, Start Num: 60

Candidate Starts for Hermeonysus\_53:

(Start: 60 @35602 has 31 MA's), (75, 35761), (82, 35866), (89, 35929), (94, 36046),

Gene: Honeyfin\_55 Start: 35891, Stop: 36343, Start Num: 57

Candidate Starts for Honeyfin\_55:

(Start: 57 @35891 has 9 MA's), (65, 35945), (71, 36008), (75, 36053), (82, 36158), (83, 36164), (89, 36221), (94, 36338),

Gene: Jamun\_28 Start: 21237, Stop: 20692, Start Num: 52

Candidate Starts for Jamun\_28:

(36, 21321), (Start: 50 @21240 has 1 MA's), (Start: 52 @21237 has 15 MA's), (Start: 62 @21204 has 1 MA's), (69, 21108), (74, 21063), (75, 21057), (84, 20943), (95, 20766),

Gene: Jefe\_54 Start: 35660, Stop: 36109, Start Num: 60

Candidate Starts for Jefe\_54:

(14, 35351), (15, 35354), (30, 35495), (39, 35567), (Start: 60 @35660 has 31 MA's), (75, 35819), (82, 35924), (83, 35930), (89, 35987), (94, 36104),

Gene: Jollipop\_54 Start: 35999, Stop: 36448, Start Num: 60

Candidate Starts for Jollipop\_54:

(5, 35573), (14, 35690), (15, 35693), (30, 35834), (39, 35906), (Start: 60 @35999 has 31 MA's), (71, 36113), (75, 36158), (82, 36263), (83, 36269), (89, 36326), (94, 36443),

Gene: JustASigh\_98 Start: 55410, Stop: 55766, Start Num: 63

Candidate Starts for JustASigh\_98:

(45, 55332), (59, 55383), (Start: 63 @55410 has 1 MA's), (65, 55437), (70, 55491), (73, 55521), (74, 55533), (75, 55539), (82, 55644), (83, 55650), (87, 55689), (92, 55755),

Gene: KHumphrey\_30 Start: 20837, Stop: 20517, Start Num: 62

Candidate Starts for KHumphrey\_30:

(1, 21422), (4, 21272), (18, 21122), (42, 20927), (Start: 52 @20870 has 15 MA's), (Start: 62 @20837 has 1 MA's), (69, 20741),

Gene: KaiHaiDragon\_54 Start: 35596, Stop: 36045, Start Num: 60

Candidate Starts for KaiHaiDragon\_54:

(Start: 60 @35596 has 31 MA's), (80, 35845), (82, 35860), (83, 35866), (89, 35923), (94, 36040),

Gene: KendraB23\_32 Start: 22134, Stop: 21769, Start Num: 69

Candidate Starts for KendraB23\_32:

(36, 22350), (Start: 52 @22263 has 15 MA's), (69, 22134), (74, 22089), (75, 22083), (82, 21978), (84, 21969), (95, 21822),

Gene: Kowalski\_53 Start: 35709, Stop: 36158, Start Num: 60

Candidate Starts for Kowalski\_53:

(14, 35400), (15, 35403), (30, 35544), (39, 35616), (Start: 60 @35709 has 31 MA's), (82, 35973), (83, 35979), (89, 36036), (94, 36153),

Gene: Kuleana\_32 Start: 21579, Stop: 21160, Start Num: 41

Candidate Starts for Kuleana\_32:

(25, 21714), (Start: 41 @21579 has 1 MA's), (49, 21528), (Start: 62 @21480 has 1 MA's), (67, 21408), (69, 21384), (84, 21219),

Gene: Laphuphu24k\_29 Start: 20823, Stop: 20503, Start Num: 62

Candidate Starts for Laphuphu24k\_29:

(4, 21258), (18, 21108), (42, 20913), (Start: 52 @20856 has 15 MA's), (Start: 62 @20823 has 1 MA's), (69, 20727),

Gene: LittleFortune\_55 Start: 35965, Stop: 36414, Start Num: 60

Candidate Starts for LittleFortune\_55:

(5, 35539), (14, 35656), (15, 35659), (30, 35800), (39, 35872), (Start: 60 @35965 has 31 MA's), (82, 36229), (83, 36235), (89, 36292), (94, 36409),

Gene: LittleTokyo\_32 Start: 21633, Stop: 21280, Start Num: 51

Candidate Starts for LittleTokyo\_32:

(Start: 51 @21633 has 1 MA's), (67, 21528), (69, 21504),

Gene: Lucretia\_54 Start: 35620, Stop: 36072, Start Num: 57

Candidate Starts for Lucretia\_54:

(Start: 57 @35620 has 9 MA's), (65, 35674), (71, 35737), (75, 35782), (81, 35884), (82, 35887), (83, 35893), (89, 35950), (94, 36067),

Gene: Margaery\_51 Start: 36177, Stop: 36518, Start Num: 54

Candidate Starts for Margaery\_51:

(10, 35859), (11, 35862), (12, 35868), (17, 35898), (21, 35925), (22, 35928), (43, 36120), (Start: 52 @36165 has 15 MA's), (53, 36168), (Start: 54 @36177 has 1 MA's), (Start: 63 @36210 has 1 MA's), (71, 36300), (72, 36318), (77, 36393), (78, 36417), (79, 36423), (86, 36483),

Gene: Megan\_52 Start: 39265, Stop: 39606, Start Num: 61

Candidate Starts for Megan\_52:

(8, 38917), (16, 38971), (19, 38992), (20, 39001), (28, 39076), (29, 39088), (31, 39103), (35, 39136), (38, 39160), (40, 39175), (46, 39217), (Start: 61 @39265 has 1 MA's), (64, 39298), (78, 39493), (79, 39499), (82, 39526), (83, 39532), (85, 39550),

Gene: Merry\_ Start: 37459, Stop: 37911, Start Num: 58

Candidate Starts for Merry\_:

(Start: 58 @37459 has 2 MA's), (76, 37657), (79, 37699), (94, 37906),

Gene: Metamorphoo\_56 Start: 36831, Stop: 37280, Start Num: 60

Candidate Starts for Metamorphoo\_56:

(Start: 60 @36831 has 31 MA's), (65, 36882), (75, 36990), (82, 37095), (83, 37101), (94, 37275),

Gene: Niblet\_28 Start: 21668, Stop: 21147, Start Num: 52

Candidate Starts for Niblet\_28:

(31, 21791), (36, 21752), (Start: 52 @21668 has 15 MA's), (69, 21539), (74, 21494), (75, 21488), (82, 21383), (84, 21374), (95, 21227),

Gene: NoodlelyBoi\_55 Start: 36387, Stop: 36836, Start Num: 60

Candidate Starts for NoodlelyBoi\_55:

(13, 36069), (24, 36156), (26, 36174), (37, 36273), (44, 36327), (Start: 60 @36387 has 31 MA's), (75, 36546), (76, 36582), (80, 36636), (82, 36651), (83, 36657), (89, 36714), (94, 36831),

Gene: Onika\_53 Start: 35684, Stop: 36133, Start Num: 60

Candidate Starts for Onika\_53:

(Start: 60 @35684 has 31 MA's), (75, 35843), (82, 35948), (89, 36011), (94, 36128),

Gene: Oppalora\_29 Start: 20837, Stop: 20517, Start Num: 62

Candidate Starts for Oppalora\_29:

(4, 21272), (18, 21122), (42, 20927), (Start: 52 @20870 has 15 MA's), (Start: 62 @20837 has 1 MA's), (69, 20741),

Gene: Orcanus\_29 Start: 21876, Stop: 21382, Start Num: 52

Candidate Starts for Orcanus\_29:

(31, 22002), (36, 21963), (Start: 52 @21876 has 15 MA's), (69, 21747), (74, 21702), (75, 21696), (82, 21591), (84, 21582), (95, 21435),

Gene: Paschalis\_53 Start: 35691, Stop: 36140, Start Num: 60

Candidate Starts for Paschalis\_53:

(Start: 60 @35691 has 31 MA's), (68, 35790), (75, 35850), (82, 35955), (83, 35961), (89, 36018), (94, 36135),

Gene: Pelletreau\_31 Start: 21946, Stop: 21581, Start Num: 69

Candidate Starts for Pelletreau\_31:

(36, 22162), (Start: 52 @22075 has 15 MA's), (69, 21946), (74, 21901), (75, 21895), (82, 21790), (84, 21781), (95, 21634),

Gene: PhedwardCullen\_53 Start: 35442, Stop: 35891, Start Num: 60

Candidate Starts for PhedwardCullen\_53:

(Start: 60 @35442 has 31 MA's), (75, 35601), (82, 35706), (83, 35712), (89, 35769), (94, 35886),

Gene: Phorgeous\_53 Start: 35522, Stop: 35974, Start Num: 57

Candidate Starts for Phorgeous\_53:

(Start: 57 @35522 has 9 MA's), (65, 35576), (75, 35684), (82, 35789), (83, 35795), (89, 35852), (94, 35969),

Gene: Phrancesco\_54 Start: 35812, Stop: 36264, Start Num: 57

Candidate Starts for Phrancesco\_54:

(Start: 57 @35812 has 9 MA's), (65, 35866), (75, 35974), (82, 36079), (89, 36142), (94, 36259),

Gene: PierreOrion\_54 Start: 35858, Stop: 36307, Start Num: 60

Candidate Starts for PierreOrion\_54:

(5, 35432), (14, 35549), (15, 35552), (30, 35693), (39, 35765), (Start: 60 @35858 has 31 MA's), (71, 35972), (75, 36017), (82, 36122), (83, 36128), (89, 36185), (94, 36302),

Gene: PiperSansNom\_54 Start: 35998, Stop: 36447, Start Num: 60

Candidate Starts for PiperSansNom\_54:

(Start: 60 @35998 has 31 MA's), (75, 36157), (82, 36262), (89, 36325), (94, 36442),

Gene: Piperis\_54 Start: 35645, Stop: 36097, Start Num: 57

Candidate Starts for Piperis\_54:

(Start: 57 @35645 has 9 MA's), (65, 35699), (75, 35807), (82, 35912), (83, 35918), (89, 35975), (94, 36092),

Gene: Pulchra\_55 Start: 36042, Stop: 36494, Start Num: 57

Candidate Starts for Pulchra\_55:

(Start: 57 @36042 has 9 MA's), (65, 36096), (71, 36159), (75, 36204), (82, 36309), (89, 36372), (94, 36489),

Gene: Quhwah\_57 Start: 36306, Stop: 36755, Start Num: 60

Candidate Starts for Quhwah\_57:

(Start: 60 @36306 has 31 MA's), (75, 36465), (82, 36570), (83, 36576), (89, 36633), (94, 36750),

Gene: Ramiel05\_53 Start: 35709, Stop: 36158, Start Num: 60

Candidate Starts for Ramiel05\_53:

(14, 35400), (15, 35403), (30, 35544), (39, 35616), (Start: 60 @35709 has 31 MA's), (82, 35973), (83, 35979), (89, 36036), (94, 36153),

Gene: Rattail\_30 Start: 20919, Stop: 20599, Start Num: 62

Candidate Starts for Rattail\_30:

(4, 21354), (18, 21204), (42, 21009), (Start: 52 @20952 has 15 MA's), (Start: 62 @20919 has 1 MA's), (69, 20823),

Gene: RobsFeet\_57 Start: 37130, Stop: 37579, Start Num: 60

Candidate Starts for RobsFeet\_57:

(Start: 60 @37130 has 31 MA's), (65, 37181), (75, 37289), (82, 37394), (83, 37400), (94, 37574),

Gene: Rockwell\_53 Start: 35709, Stop: 36158, Start Num: 60

Candidate Starts for Rockwell\_53:

(Start: 60 @35709 has 31 MA's), (75, 35868), (82, 35973), (89, 36036), (94, 36153),

Gene: Ruchi\_29 Start: 22284, Stop: 21793, Start Num: 52

Candidate Starts for Ruchi\_29:

(31, 22410), (Start: 52 @22284 has 15 MA's), (Start: 62 @22251 has 1 MA's), (67, 22179), (69, 22155), (74, 22110), (84, 21990),

Gene: Savannah\_53 Start: 35736, Stop: 36185, Start Num: 60

Candidate Starts for Savannah\_53:

(Start: 60 @35736 has 31 MA's), (75, 35895), (82, 36000), (83, 36006), (89, 36063), (94, 36180),

Gene: Scumberland\_55 Start: 35931, Stop: 36380, Start Num: 60

Candidate Starts for Scumberland\_55:

(5, 35505), (14, 35622), (15, 35625), (30, 35766), (39, 35838), (Start: 60 @35931 has 31 MA's), (82, 36195), (83, 36201), (89, 36258), (94, 36375),

Gene: Shotgun\_53 Start: 35535, Stop: 35984, Start Num: 60

Candidate Starts for Shotgun\_53:

(Start: 60 @35535 has 31 MA's), (75, 35694), (82, 35799), (83, 35805), (89, 35862), (94, 35979),

Gene: Shrubaron\_56 Start: 36743, Stop: 37192, Start Num: 60

Candidate Starts for Shrubaron\_56:

(Start: 60 @36743 has 31 MA's), (65, 36794), (75, 36902), (82, 37007), (83, 37013), (94, 37187),

Gene: SirFrank\_54 Start: 35866, Stop: 36318, Start Num: 56

Candidate Starts for SirFrank\_54:

(Start: 56 @35866 has 1 MA's), (66, 35944), (75, 36028), (76, 36064), (82, 36133), (91, 36238), (94, 36313),

Gene: Skugga\_53 Start: 35695, Stop: 36144, Start Num: 60

Candidate Starts for Skugga\_53:

(2, 35245), (3, 35257), (6, 35341), (7, 35344), (9, 35356), (23, 35443), (27, 35506), (33, 35563), (34, 35566), (47, 35656), (Start: 60 @35695 has 31 MA's), (65, 35746), (75, 35854), (82, 35959), (94, 36139),

Gene: Smarties\_62 Start: 37502, Stop: 37951, Start Num: 60

Candidate Starts for Smarties\_62:

(47, 37460), (Start: 60 @37502 has 31 MA's), (65, 37553), (75, 37661), (82, 37766), (83, 37772), (94, 37946),

Gene: Sunny\_ Start: 37461, Stop: 37913, Start Num: 58  
Candidate Starts for Sunny\_:  
(Start: 58 @37461 has 2 MA's), (76, 37659), (79, 37701), (94, 37908),

Gene: TaylorSipht\_29 Start: 21289, Stop: 20720, Start Num: 52  
Candidate Starts for TaylorSipht\_29:  
(36, 21373), (Start: 52 @21289 has 15 MA's), (Start: 62 @21256 has 1 MA's), (67, 21184), (69, 21160),  
(74, 21115), (88, 20941),

Gene: Teamocil\_56 Start: 35776, Stop: 36225, Start Num: 60  
Candidate Starts for Teamocil\_56:  
(47, 35737), (Start: 60 @35776 has 31 MA's), (65, 35827), (75, 35935), (82, 36040), (83, 36046), (90,  
36124),

Gene: Toad24\_31 Start: 22325, Stop: 21831, Start Num: 52  
Candidate Starts for Toad24\_31:  
(36, 22412), (Start: 52 @22325 has 15 MA's), (69, 22196), (74, 22151), (75, 22145), (82, 22040), (84,  
22031), (95, 21884),

Gene: Tyrumbra\_54 Start: 36909, Stop: 37358, Start Num: 60  
Candidate Starts for Tyrumbra\_54:  
(Start: 60 @36909 has 31 MA's), (65, 36960), (75, 37068), (82, 37173), (89, 37236), (94, 37353),

Gene: Vulpecula\_29 Start: 21960, Stop: 21436, Start Num: 52  
Candidate Starts for Vulpecula\_29:  
(Start: 52 @21960 has 15 MA's), (Start: 62 @21927 has 1 MA's), (67, 21855), (69, 21831), (74, 21786),  
(84, 21666),

Gene: Westrich\_31 Start: 21873, Stop: 21508, Start Num: 69  
Candidate Starts for Westrich\_31:  
(31, 22128), (36, 22089), (Start: 52 @22002 has 15 MA's), (69, 21873), (74, 21828), (75, 21822), (82,  
21717), (84, 21708), (95, 21561),

Gene: WileyE\_30 Start: 21353, Stop: 20883, Start Num: 52  
Candidate Starts for WileyE\_30:  
(31, 21479), (36, 21440), (Start: 52 @21353 has 15 MA's), (Start: 62 @21320 has 1 MA's), (67, 21248),  
(69, 21224), (82, 21068),

Gene: Yeti\_54 Start: 35678, Stop: 36130, Start Num: 57  
Candidate Starts for Yeti\_54:  
(Start: 57 @35678 has 9 MA's), (65, 35732), (71, 35795), (75, 35840), (82, 35945), (83, 35951), (89,  
36008), (94, 36125),

Gene: Zapato\_53 Start: 35894, Stop: 36343, Start Num: 60  
Candidate Starts for Zapato\_53:  
(27, 35705), (34, 35765), (47, 35855), (Start: 60 @35894 has 31 MA's), (65, 35945), (75, 36053), (83,  
36164), (89, 36221), (93, 36272),

Gene: Zixiang\_28 Start: 21681, Stop: 21187, Start Num: 52  
Candidate Starts for Zixiang\_28:  
(36, 21768), (Start: 52 @21681 has 15 MA's), (69, 21552), (74, 21507), (75, 21501), (82, 21396), (84,  
21387), (95, 21240),

