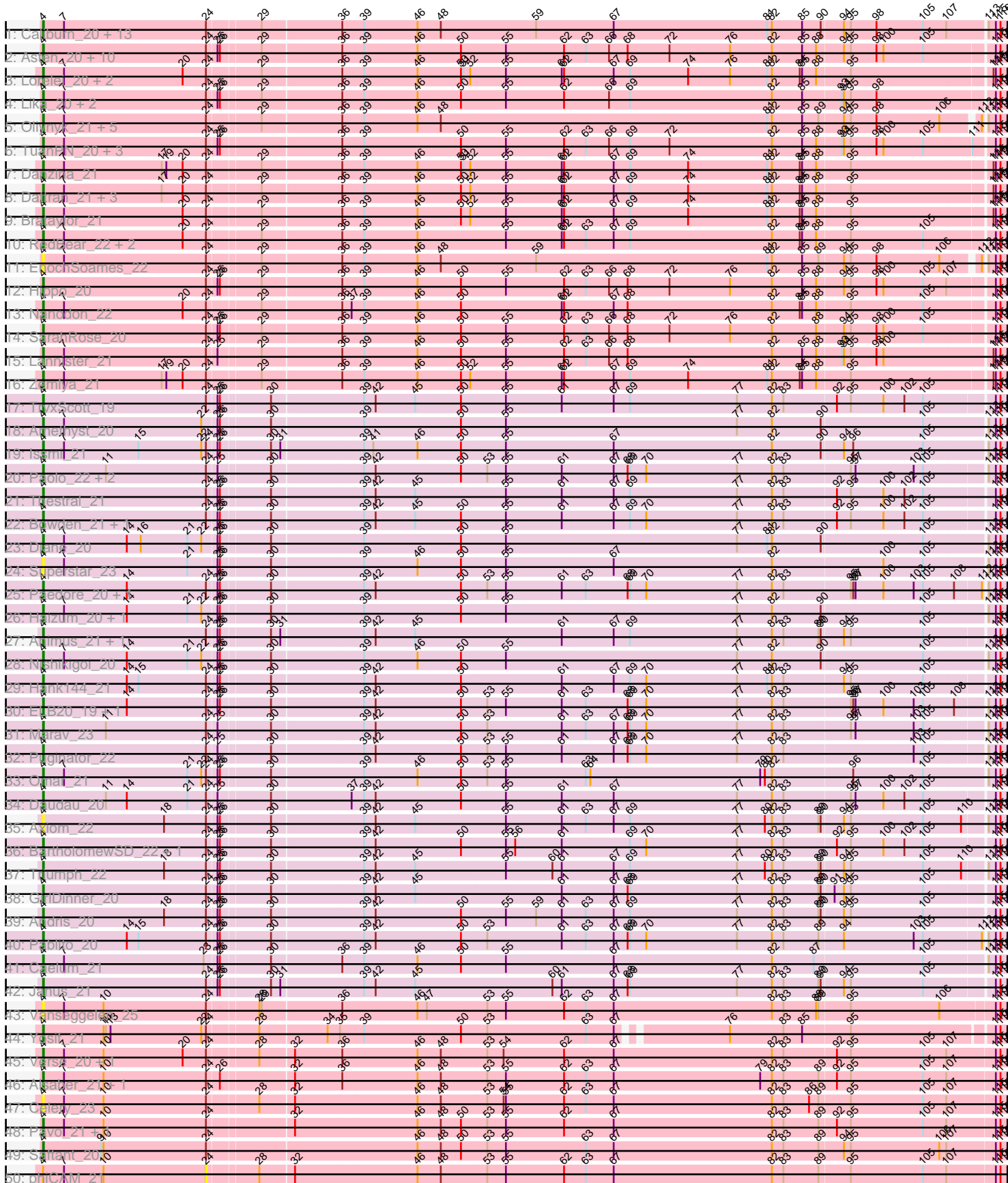
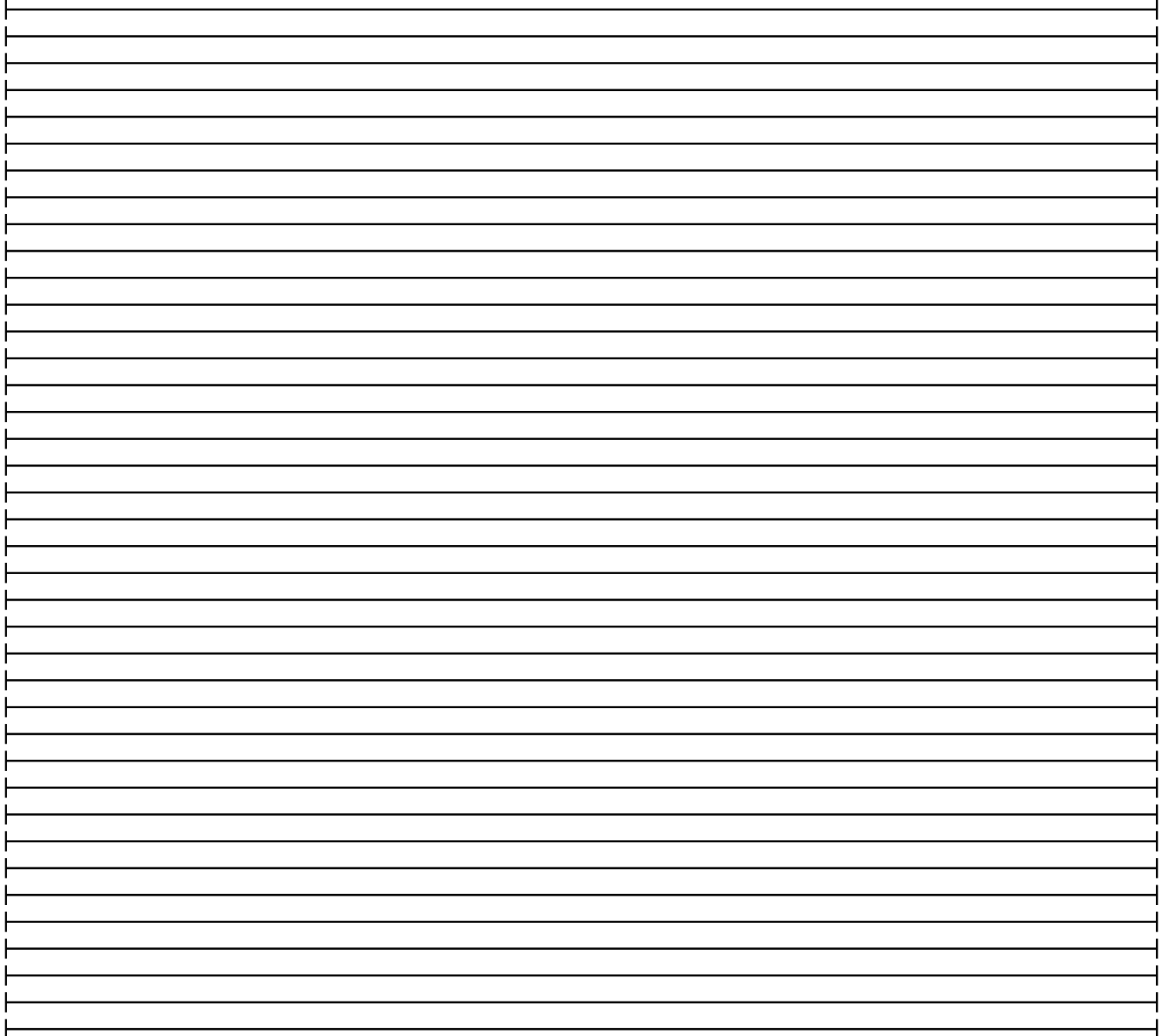
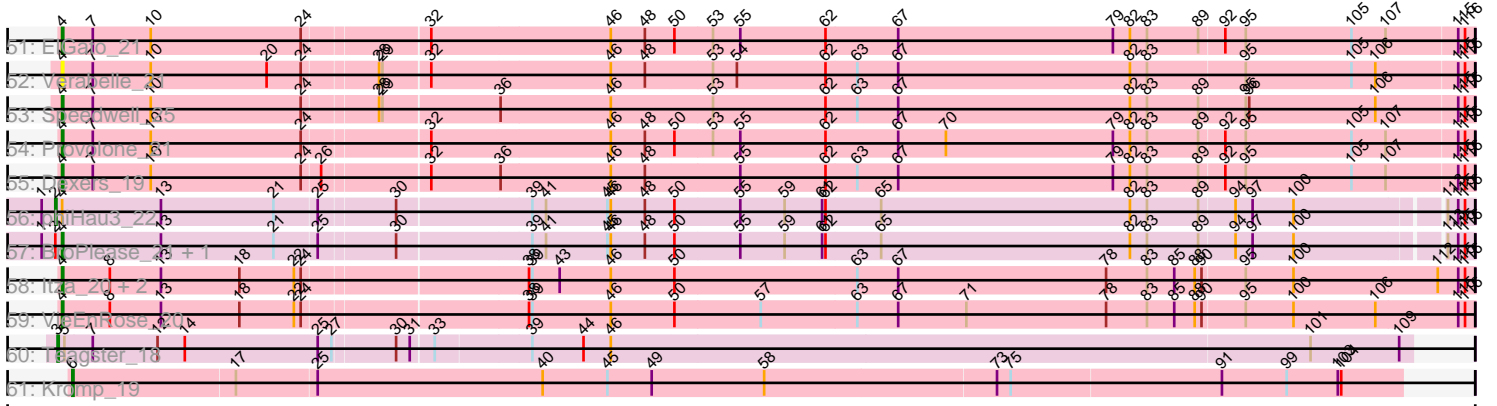


Pham 202794



Pham 202794



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 202794 Report

This analysis was run 01/18/25 on database version 583.

WARNING: Pham size does not match number of genes in report. Either unphamerated genes have been added (by you) or starterator has removed genes due to invalid start codon.

Pham number 202794 has 115 members, 7 are drafts.

Phages represented in each track:

- Track 1 : Caliburn\_20, Legacy\_20, BeardedLady\_21, Nerdos\_20, Leviticus\_20, Unstoppable\_20, SunsetPointe\_20, Aaronocolus\_20, Phettuccine\_20, Hydra\_22, Indigo\_20, Esperer\_20, Bovely\_20, Ozzie\_20
- Track 2 : Asten\_20, Snorlax\_20, Werner\_20, Dwayne\_20, Chucky\_20, BarryBee\_22, OzzyJ\_21, Emaanora\_22, TagePhighter\_21, Whatever\_20, Triste\_20
- Track 3 : Lorelei\_20, Nabi\_20, Rana\_20
- Track 4 : Lika\_20, Sujidade\_21, Godpower\_21
- Track 5 : Oliynyk\_21, Izzy\_21, Jash\_21, BryanRecycles\_21, Eddasa\_21, Rusticus\_21
- Track 6 : TuanPN\_20, Maneekul\_20, Yasdnil\_20, Ejemplo\_20
- Track 7 : Danzina\_21
- Track 8 : Dattran\_21, Celeste\_20, Goby\_20, Toma\_20
- Track 9 : Brataylor\_21
- Track 10 : RedBear\_22, South40\_21, Katalie\_21
- Track 11 : EnochSoames\_22
- Track 12 : Hippo\_20
- Track 13 : Nanodon\_22
- Track 14 : SarahRose\_20
- Track 15 : Lannister\_21
- Track 16 : Zemlya\_21
- Track 17 : TrvxScott\_19
- Track 18 : Amethyst\_20
- Track 19 : Issmi\_21
- Track 20 : Paolo\_22, Zainub\_22, Jevington\_22
- Track 21 : Thestral\_21
- Track 22 : Bowden\_21, TinaBelcher\_20
- Track 23 : Diane\_20
- Track 24 : Superstar\_23
- Track 25 : Paedore\_20, Loofah\_21
- Track 26 : Haizum\_20, Tefunt\_20
- Track 27 : Animus\_21, SqueakyClean\_21
- Track 28 : Nishikigoi\_20
- Track 29 : Hank144\_21

- Track 30 : ELB20\_19, R4\_20
- Track 31 : Marav\_23
- Track 32 : Puginator\_22
- Track 33 : Omar\_21
- Track 34 : Daudau\_20
- Track 35 : Axiom\_22
- Track 36 : BartholomewSD\_22, Alvy\_22
- Track 37 : Triumph\_22
- Track 38 : GirlDinner\_20
- Track 39 : Andris\_20
- Track 40 : Pablito\_20
- Track 41 : Caelum\_21
- Track 42 : Janus\_21
- Track 43 : Vanseggelen\_25
- Track 44 : Yosif\_21
- Track 45 : Verse\_20, Amela\_20
- Track 46 : Alsaber\_21, Kaine\_20
- Track 47 : Celery\_23
- Track 48 : Pavo\_21, Conan\_21
- Track 49 : Saftant\_20
- Track 50 : phiCAM\_21
- Track 51 : ElGato\_21
- Track 52 : Verabelle\_21
- Track 53 : Speedwell\_25
- Track 54 : Provolone\_21
- Track 55 : Dexers\_19
- Track 56 : phiHau3\_22
- Track 57 : BroPlease\_21, GreenWeasel\_22
- Track 58 : Itza\_20, Celia\_20, Urza\_20
- Track 59 : VieEnRose\_20
- Track 60 : Teagster\_18
- Track 61 : Kromp\_19

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

The start number called the most often in the published annotations is 4, it was called in 105 of the 108 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Aaronocolus\_20, Alsaber\_21, Alvy\_22, Amela\_20, Amethyst\_20, Andris\_20, Animus\_21, Asten\_20, Axiom\_22, BarryBee\_22, BartholomewSD\_22, BeardedLady\_21, Bovely\_20, Bowden\_21, Brataylor\_21, BroPlease\_21, BryanRecycles\_21, Caelum\_21, Caliburn\_20, Celery\_23, Celeste\_20, Celia\_20, Chucky\_20, Conan\_21, Danzina\_21, Dattran\_21, Daudau\_20, Dexers\_19, Diane\_20, Dwayne\_20, ELB20\_19, Eddasa\_21, Ejemplo\_20, ElGato\_21, Emaanora\_22, EnochSoames\_22, Esperer\_20, GirlDinner\_20, Goby\_20, Godpower\_21, GreenWeasel\_22, Haizum\_20, Hank144\_21, Hippo\_20, Hydra\_22, Indigo\_20, Issmi\_21, Itza\_20, Izzy\_21, Janus\_21, Jash\_21, Jevington\_22, Kaine\_20, Katalie\_21, Lannister\_21, Legacy\_20, Leviticus\_20, Lika\_20, Loofah\_21, Lorelei\_20, Maneekul\_20, Marav\_23, Nabi\_20, Nanodon\_22, Nerdos\_20, Nishikigoi\_20,

Oliynyk\_21, Omar\_21, Ozzie\_20, OzzyJ\_21, Pablito\_20, Paedore\_20, Paolo\_22, Pavo\_21, Phettuccine\_20, Provolone\_21, Puginator\_22, R4\_20, Rana\_20, RedBear\_22, Rusticus\_21, Saftant\_20, SarahRose\_20, Snorlax\_20, South40\_21, Speedwell\_25, SqueakyClean\_21, Sujidade\_21, SunsetPointe\_20, Superstar\_23, TagePhighter\_21, Tefunt\_20, Thestral\_21, TinaBelcher\_20, Toma\_20, Triste\_20, Triumph\_22, TrvxScott\_19, TuanPN\_20, Unstoppable\_20, Urza\_20, Vanseggelen\_25, Verabelle\_21, Verse\_20, VieEnRose\_20, Werner\_20, Whatever\_20, Yasdnil\_20, Yosif\_21, Zainub\_22, Zemlya\_21,

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

- phiCAM\_21, phiHau3\_22,

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

- Kromp\_19, Teagster\_18,

### Summary by start number:

Start 2:

- Found in 3 of 115 ( 2.6% ) of genes in pham
- Manual Annotations of this start: 1 of 108
- Called 33.3% of time when present
- Phage (with cluster) where this start called: phiHau3\_22 (BD4),

Start 3:

- Found in 1 of 115 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 108
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Teagster\_18 (EB),

Start 4:

- Found in 113 of 115 ( 98.3% ) of genes in pham
- Manual Annotations of this start: 105 of 108
- Called 98.2% of time when present
- Phage (with cluster) where this start called: Aaronocolus\_20 (BD1), Alsaber\_21 (BD3), Alvy\_22 (BD2), Amela\_20 (BD3), Amethyst\_20 (BD2), Andris\_20 (BD2), Animus\_21 (BD2), Asten\_20 (BD1), Axiom\_22 (BD2), BarryBee\_22 (BD1), BartholomewSD\_22 (BD2), BeardedLady\_21 (BD1), Bovely\_20 (BD1), Bowden\_21 (BD2), Brataylor\_21 (BD1), BroPlease\_21 (BD4), BryanRecycles\_21 (BD1), Caelum\_21 (BD2), Caliburn\_20 (BD1), Celery\_23 (BD3), Celeste\_20 (BD1), Celia\_20 (BD6), Chucky\_20 (BD1), Conan\_21 (BD3), Danzina\_21 (BD1), Dattran\_21 (BD1), Daudau\_20 (BD2), Dexers\_19 (BD3), Diane\_20 (BD2), Dwayne\_20 (BD1), ELB20\_19 (BD2), Eddasa\_21 (BD1), Ejemplo\_20 (BD1), ElGato\_21 (BD3), Emaanora\_22 (BD1), EnochSoames\_22 (BD1), Esperer\_20 (BD1), GirlDinner\_20 (BD2), Goby\_20 (BD1), Godpower\_21 (BD1), GreenWeasel\_22 (BD4), Haizum\_20 (BD2), Hank144\_21 (BD2), Hippo\_20 (BD1), Hydra\_22 (BD1), Indigo\_20 (BD1), Issmi\_21 (BD2), Itza\_20 (BD6), Izzy\_21 (BD1), Janus\_21 (BD2), Jash\_21 (BD1), Jevington\_22 (BD2), Kaine\_20 (BD3), Katalie\_21 (BD1), Lannister\_21 (BD1), Legacy\_20 (BD1), Leviticus\_20 (BD1), Lika\_20 (BD1), Loofah\_21 (BD2), Lorelei\_20 (BD1), Maneekul\_20 (BD1), Marav\_23 (BD2), Nabi\_20 (BD1), Nanodon\_22 (BD1), Nerdos\_20 (BD1), Nishikigoi\_20 (BD2), Oliynyk\_21 (BD1), Omar\_21 (BD2), Ozzie\_20 (BD1), OzzyJ\_21 (BD1), Pablito\_20 (BD2), Paedore\_20 (BD2), Paolo\_22 (BD2), Pavo\_21 (BD3), Phettuccine\_20 (BD1), Provolone\_21 (BD3), Puginator\_22 (BD2), R4\_20 (BD2), Rana\_20 (BD1), RedBear\_22 (BD1), Rusticus\_21 (BD1), Saftant\_20

(BD3), SarahRose\_20 (BD1), Snorlax\_20 (BD1), South40\_21 (BD1), Speedwell\_25 (BD3), SqueakyClean\_21 (BD2), Sujidade\_21 (BD1), SunsetPointe\_20 (BD1), Superstar\_23 (BD2), TAgePhighter\_21 (BD1), Tefunt\_20 (BD2), Thestral\_21 (BD2), TinaBelcher\_20 (BD2), Toma\_20 (BD1), Triste\_20 (BD1), Triumph\_22 (BD2), TrvxScott\_19 (BD2), TuanPN\_20 (BD1), Unstoppable\_20 (BD1), Urza\_20 (BD6), Vanseggelen\_25 (BD3), Verabelle\_21 (BD3), Verse\_20 (BD3), VieEnRose\_20 (BD6), Werner\_20 (BD1), Whatever\_20 (BD1), Yasdnil\_20 (BD1), Yosif\_21 (BD3), Zainub\_22 (BD2), Zemlya\_21 (BD1),

Start 6:

- Found in 1 of 115 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 108
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Kromp\_19 (singleton),

Start 24:

- Found in 103 of 115 ( 89.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 1.0% of time when present
- Phage (with cluster) where this start called: phiCAM\_21 (BD3),

### **Summary by clusters:**

There are 7 clusters represented in this pham: singleton, EB, BD4, BD6, BD1, BD3, BD2,

Info for manual annotations of cluster BD1:

- Start number 4 was manually annotated 55 times for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 4 was manually annotated 32 times for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 4 was manually annotated 12 times for cluster BD3.

Info for manual annotations of cluster BD4:

- Start number 2 was manually annotated 1 time for cluster BD4.
- Start number 4 was manually annotated 2 times for cluster BD4.

Info for manual annotations of cluster BD6:

- Start number 4 was manually annotated 4 times for cluster BD6.

Info for manual annotations of cluster EB:

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

### **Gene Information:**

Gene: Aaronocolus\_20 Start: 15854, Stop: 17068, Start Num: 4

Candidate Starts for Aaronocolus\_20:

(Start: 4 @15854 has 105 MA's), (7, 15881), (24, 16064), (29, 16127), (36, 16226), (39, 16253), (46, 16322), (48, 16352), (59, 16472), (67, 16571), (81, 16769), (82, 16775), (85, 16814), (90, 16838), (94,

16865), (95, 16874), (98, 16907), (105, 16967), (107, 16997), (113, 17045), (115, 17054), (116, 17060),

Gene: Alsaber\_21 Start: 16538, Stop: 17755, Start Num: 4

Candidate Starts for Alsaber\_21:

(Start: 4 @16538 has 105 MA's), (7, 16565), (10, 16616), (24, 16748), (26, 16763), (32, 16850), (36, 16910), (46, 17006), (48, 17036), (53, 17093), (55, 17117), (62, 17192), (63, 17219), (67, 17255), (79, 17444), (82, 17459), (83, 17474), (89, 17519), (92, 17540), (95, 17558), (105, 17651), (107, 17681), (115, 17741), (116, 17747),

Gene: Alvy\_22 Start: 15862, Stop: 17073, Start Num: 4

Candidate Starts for Alvy\_22:

(Start: 4 @15862 has 105 MA's), (24, 16072), (25, 16084), (26, 16087), (30, 16147), (39, 16261), (42, 16276), (50, 16384), (55, 16441), (56, 16453), (61, 16513), (69, 16600), (70, 16621), (77, 16738), (82, 16783), (83, 16798), (92, 16864), (95, 16882), (100, 16924), (102, 16951), (105, 16975), (115, 17059), (116, 17065),

Gene: Amela\_20 Start: 16831, Stop: 18048, Start Num: 4

Candidate Starts for Amela\_20:

(Start: 4 @16831 has 105 MA's), (7, 16858), (10, 16909), (20, 17011), (24, 17041), (28, 17101), (32, 17143), (36, 17203), (46, 17299), (48, 17329), (53, 17386), (54, 17407), (62, 17485), (67, 17548), (82, 17752), (83, 17767), (92, 17833), (95, 17851), (105, 17944), (107, 17974), (115, 18034), (116, 18040),

Gene: Amethyst\_20 Start: 16313, Stop: 17527, Start Num: 4

Candidate Starts for Amethyst\_20:

(Start: 4 @16313 has 105 MA's), (7, 16340), (22, 16517), (25, 16535), (26, 16538), (30, 16598), (39, 16712), (50, 16835), (55, 16892), (77, 17189), (82, 17234), (90, 17297), (105, 17426), (113, 17504), (115, 17513), (116, 17519),

Gene: Andris\_20 Start: 15567, Stop: 16778, Start Num: 4

Candidate Starts for Andris\_20:

(Start: 4 @15567 has 105 MA's), (18, 15723), (24, 15777), (25, 15789), (26, 15792), (30, 15852), (39, 15966), (42, 15981), (50, 16089), (55, 16146), (59, 16185), (61, 16218), (63, 16248), (67, 16284), (69, 16305), (77, 16443), (82, 16488), (83, 16503), (89, 16548), (90, 16551), (94, 16578), (95, 16587), (105, 16680), (115, 16764), (116, 16770),

Gene: Animus\_21 Start: 15903, Stop: 17114, Start Num: 4

Candidate Starts for Animus\_21:

(Start: 4 @15903 has 105 MA's), (24, 16113), (25, 16125), (26, 16128), (30, 16188), (31, 16200), (39, 16302), (42, 16317), (45, 16368), (61, 16554), (67, 16620), (69, 16641), (77, 16779), (82, 16824), (83, 16839), (89, 16884), (90, 16887), (94, 16914), (95, 16923), (105, 17016), (115, 17100), (116, 17106),

Gene: Asten\_20 Start: 15820, Stop: 17031, Start Num: 4

Candidate Starts for Asten\_20:

(Start: 4 @15820 has 105 MA's), (24, 16030), (25, 16042), (26, 16045), (29, 16093), (36, 16192), (39, 16219), (46, 16288), (50, 16342), (55, 16399), (62, 16474), (63, 16501), (66, 16531), (68, 16555), (72, 16609), (76, 16687), (82, 16741), (85, 16780), (88, 16798), (94, 16831), (95, 16840), (98, 16873), (100, 16882), (105, 16933), (115, 17017), (116, 17023),

Gene: Axiom\_22 Start: 15716, Stop: 16927, Start Num: 4

Candidate Starts for Axiom\_22:

(Start: 4 @15716 has 105 MA's), (18, 15872), (24, 15926), (25, 15938), (26, 15941), (30, 16001), (39, 16115), (42, 16130), (45, 16181), (55, 16295), (61, 16367), (63, 16397), (67, 16433), (69, 16454), (77,

16592), (80, 16628), (82, 16637), (83, 16652), (89, 16697), (90, 16700), (94, 16727), (95, 16736), (105, 16829), (110, 16877), (113, 16904), (115, 16913), (116, 16919),

Gene: BarryBee\_22 Start: 15830, Stop: 17041, Start Num: 4

Candidate Starts for BarryBee\_22:

(Start: 4 @15830 has 105 MA's), (24, 16040), (25, 16052), (26, 16055), (29, 16103), (36, 16202), (39, 16229), (46, 16298), (50, 16352), (55, 16409), (62, 16484), (63, 16511), (66, 16541), (68, 16565), (72, 16619), (76, 16697), (82, 16751), (85, 16790), (88, 16808), (94, 16841), (95, 16850), (98, 16883), (100, 16892), (105, 16943), (115, 17027), (116, 17033),

Gene: BartholomewSD\_22 Start: 15862, Stop: 17073, Start Num: 4

Candidate Starts for BartholomewSD\_22:

(Start: 4 @15862 has 105 MA's), (24, 16072), (25, 16084), (26, 16087), (30, 16147), (39, 16261), (42, 16276), (50, 16384), (55, 16441), (56, 16453), (61, 16513), (69, 16600), (70, 16621), (77, 16738), (82, 16783), (83, 16798), (92, 16864), (95, 16882), (100, 16924), (102, 16951), (105, 16975), (115, 17059), (116, 17065),

Gene: BeardedLady\_21 Start: 16101, Stop: 17315, Start Num: 4

Candidate Starts for BeardedLady\_21:

(Start: 4 @16101 has 105 MA's), (7, 16128), (24, 16311), (29, 16374), (36, 16473), (39, 16500), (46, 16569), (48, 16599), (59, 16719), (67, 16818), (81, 17016), (82, 17022), (85, 17061), (90, 17085), (94, 17112), (95, 17121), (98, 17154), (105, 17214), (107, 17244), (113, 17292), (115, 17301), (116, 17307),

Gene: Bovely\_20 Start: 15860, Stop: 17074, Start Num: 4

Candidate Starts for Bovely\_20:

(Start: 4 @15860 has 105 MA's), (7, 15887), (24, 16070), (29, 16133), (36, 16232), (39, 16259), (46, 16328), (48, 16358), (59, 16478), (67, 16577), (81, 16775), (82, 16781), (85, 16820), (90, 16844), (94, 16871), (95, 16880), (98, 16913), (105, 16973), (107, 17003), (113, 17051), (115, 17060), (116, 17066),

Gene: Bowden\_21 Start: 15794, Stop: 17005, Start Num: 4

Candidate Starts for Bowden\_21:

(Start: 4 @15794 has 105 MA's), (24, 16004), (25, 16016), (26, 16019), (30, 16079), (39, 16193), (42, 16208), (45, 16259), (50, 16316), (55, 16373), (61, 16445), (67, 16511), (69, 16532), (70, 16553), (77, 16670), (82, 16715), (83, 16730), (92, 16796), (95, 16814), (100, 16856), (102, 16883), (105, 16907), (115, 16991), (116, 16997),

Gene: Brataylor\_21 Start: 15847, Stop: 17058, Start Num: 4

Candidate Starts for Brataylor\_21:

(Start: 4 @15847 has 105 MA's), (7, 15874), (20, 16027), (24, 16057), (29, 16120), (36, 16219), (39, 16246), (46, 16315), (50, 16369), (52, 16381), (55, 16426), (61, 16498), (62, 16501), (67, 16564), (69, 16585), (74, 16660), (81, 16762), (82, 16768), (84, 16804), (85, 16807), (88, 16825), (95, 16867), (114, 17041), (115, 17044), (116, 17050),

Gene: BroPlease\_21 Start: 16546, Stop: 17751, Start Num: 4

Candidate Starts for BroPlease\_21:

(1, 16528), (Start: 2 @16540 has 1 MA's), (Start: 4 @16546 has 105 MA's), (13, 16633), (21, 16732), (25, 16768), (30, 16831), (39, 16945), (41, 16957), (45, 17011), (46, 17014), (48, 17044), (50, 17068), (55, 17125), (59, 17164), (61, 17197), (62, 17200), (65, 17248), (82, 17467), (83, 17482), (89, 17527), (94, 17557), (97, 17572), (100, 17608), (113, 17728), (115, 17737), (116, 17743),

Gene: BryanRecycles\_21 Start: 16017, Stop: 17219, Start Num: 4



Candidate Starts for BryanRecycles\_21:

(Start: 4 @16017 has 105 MA's), (7, 16044), (24, 16227), (29, 16290), (36, 16389), (39, 16416), (46, 16485), (48, 16515), (81, 16932), (82, 16938), (85, 16977), (89, 16998), (94, 17028), (95, 17037), (98, 17070), (106, 17151), (112, 17193), (113, 17196), (115, 17205), (116, 17211),

Gene: Caelum\_21 Start: 16340, Stop: 17551, Start Num: 4

Candidate Starts for Caelum\_21:

(Start: 4 @16340 has 105 MA's), (7, 16367), (23, 16547), (25, 16562), (26, 16565), (30, 16625), (36, 16712), (39, 16739), (46, 16808), (50, 16862), (55, 16919), (67, 17057), (82, 17261), (87, 17315), (105, 17453), (113, 17528), (115, 17537), (116, 17543),

Gene: Caliburn\_20 Start: 15834, Stop: 17048, Start Num: 4

Candidate Starts for Caliburn\_20:

(Start: 4 @15834 has 105 MA's), (7, 15861), (24, 16044), (29, 16107), (36, 16206), (39, 16233), (46, 16302), (48, 16332), (59, 16452), (67, 16551), (81, 16749), (82, 16755), (85, 16794), (90, 16818), (94, 16845), (95, 16854), (98, 16887), (105, 16947), (107, 16977), (113, 17025), (115, 17034), (116, 17040),

Gene: Celery\_23 Start: 16489, Stop: 17706, Start Num: 4

Candidate Starts for Celery\_23:

(Start: 4 @16489 has 105 MA's), (7, 16516), (10, 16567), (24, 16699), (28, 16759), (32, 16801), (46, 16957), (48, 16987), (53, 17044), (54, 17065), (55, 17068), (62, 17143), (63, 17170), (67, 17206), (82, 17410), (83, 17425), (86, 17458), (89, 17470), (95, 17509), (105, 17602), (107, 17632), (115, 17692), (116, 17698),

Gene: Celeste\_20 Start: 15839, Stop: 17050, Start Num: 4

Candidate Starts for Celeste\_20:

(Start: 4 @15839 has 105 MA's), (7, 15866), (17, 15992), (20, 16019), (24, 16049), (29, 16112), (36, 16211), (39, 16238), (46, 16307), (50, 16361), (52, 16373), (55, 16418), (61, 16490), (62, 16493), (67, 16556), (69, 16577), (74, 16652), (81, 16754), (82, 16760), (84, 16796), (85, 16799), (88, 16817), (95, 16859), (114, 17033), (115, 17036), (116, 17042),

Gene: Celia\_20 Start: 16277, Stop: 17497, Start Num: 4

Candidate Starts for Celia\_20:

(Start: 4 @16277 has 105 MA's), (8, 16319), (13, 16364), (18, 16433), (22, 16481), (24, 16487), (38, 16673), (39, 16676), (43, 16700), (46, 16745), (50, 16799), (63, 16958), (67, 16994), (78, 17177), (83, 17213), (85, 17237), (88, 17255), (90, 17261), (95, 17297), (100, 17339), (112, 17465), (115, 17483), (116, 17489),

Gene: Chucky\_20 Start: 15831, Stop: 17042, Start Num: 4

Candidate Starts for Chucky\_20:

(Start: 4 @15831 has 105 MA's), (24, 16041), (25, 16053), (26, 16056), (29, 16104), (36, 16203), (39, 16230), (46, 16299), (50, 16353), (55, 16410), (62, 16485), (63, 16512), (66, 16542), (68, 16566), (72, 16620), (76, 16698), (82, 16752), (85, 16791), (88, 16809), (94, 16842), (95, 16851), (98, 16884), (100, 16893), (105, 16944), (115, 17028), (116, 17034),

Gene: Conan\_21 Start: 16260, Stop: 17477, Start Num: 4

Candidate Starts for Conan\_21:

(Start: 4 @16260 has 105 MA's), (7, 16287), (10, 16338), (24, 16470), (32, 16572), (46, 16728), (48, 16758), (50, 16782), (53, 16815), (55, 16839), (62, 16914), (67, 16977), (82, 17181), (83, 17196), (89, 17241), (92, 17262), (95, 17280), (105, 17373), (107, 17403), (115, 17463), (116, 17469),

Gene: Danzina\_21 Start: 16049, Stop: 17260, Start Num: 4

Candidate Starts for Danzina\_21:

(Start: 4 @16049 has 105 MA's), (7, 16076), (17, 16202), (19, 16208), (20, 16229), (24, 16259), (29, 16322), (36, 16421), (39, 16448), (46, 16517), (50, 16571), (51, 16574), (52, 16583), (55, 16628), (61, 16700), (62, 16703), (67, 16766), (69, 16787), (74, 16862), (81, 16964), (82, 16970), (84, 17006), (85, 17009), (88, 17027), (95, 17069), (114, 17243), (115, 17246), (116, 17252),

Gene: Dattran\_21 Start: 15838, Stop: 17049, Start Num: 4

Candidate Starts for Dattran\_21:

(Start: 4 @15838 has 105 MA's), (7, 15865), (17, 15991), (20, 16018), (24, 16048), (29, 16111), (36, 16210), (39, 16237), (46, 16306), (50, 16360), (52, 16372), (55, 16417), (61, 16489), (62, 16492), (67, 16555), (69, 16576), (74, 16651), (81, 16753), (82, 16759), (84, 16795), (85, 16798), (88, 16816), (95, 16858), (114, 17032), (115, 17035), (116, 17041),

Gene: Daudau\_20 Start: 15774, Stop: 16985, Start Num: 4

Candidate Starts for Daudau\_20:

(Start: 4 @15774 has 105 MA's), (11, 15855), (14, 15882), (21, 15960), (24, 15984), (25, 15996), (30, 16059), (37, 16158), (39, 16173), (42, 16188), (50, 16296), (55, 16353), (61, 16425), (67, 16491), (77, 16650), (82, 16695), (83, 16710), (95, 16794), (97, 16800), (100, 16836), (102, 16863), (105, 16887), (115, 16971), (116, 16977),

Gene: Dexers\_19 Start: 16241, Stop: 17458, Start Num: 4

Candidate Starts for Dexers\_19:

(Start: 4 @16241 has 105 MA's), (7, 16268), (10, 16319), (24, 16451), (26, 16466), (32, 16553), (36, 16613), (46, 16709), (48, 16739), (55, 16820), (62, 16895), (63, 16922), (67, 16958), (79, 17147), (82, 17162), (83, 17177), (89, 17222), (92, 17243), (95, 17261), (105, 17354), (107, 17384), (115, 17444), (116, 17450),

Gene: Diane\_20 Start: 16306, Stop: 17520, Start Num: 4

Candidate Starts for Diane\_20:

(Start: 4 @16306 has 105 MA's), (7, 16333), (14, 16414), (16, 16432), (21, 16492), (22, 16510), (25, 16528), (26, 16531), (30, 16591), (39, 16705), (50, 16828), (55, 16885), (77, 17182), (81, 17221), (82, 17227), (90, 17290), (105, 17419), (113, 17497), (115, 17506), (116, 17512),

Gene: Dwayne\_20 Start: 15827, Stop: 17038, Start Num: 4

Candidate Starts for Dwayne\_20:

(Start: 4 @15827 has 105 MA's), (24, 16037), (25, 16049), (26, 16052), (29, 16100), (36, 16199), (39, 16226), (46, 16295), (50, 16349), (55, 16406), (62, 16481), (63, 16508), (66, 16538), (68, 16562), (72, 16616), (76, 16694), (82, 16748), (85, 16787), (88, 16805), (94, 16838), (95, 16847), (98, 16880), (100, 16889), (105, 16940), (115, 17024), (116, 17030),

Gene: ELB20\_19 Start: 15893, Stop: 17104, Start Num: 4

Candidate Starts for ELB20\_19:

(Start: 4 @15893 has 105 MA's), (14, 16001), (24, 16103), (25, 16115), (26, 16118), (30, 16178), (39, 16292), (42, 16307), (50, 16415), (53, 16448), (55, 16472), (61, 16544), (63, 16574), (68, 16628), (69, 16631), (70, 16652), (77, 16769), (82, 16814), (83, 16829), (95, 16913), (96, 16916), (97, 16919), (100, 16955), (103, 16994), (105, 17006), (108, 17045), (113, 17081), (115, 17090), (116, 17096),

Gene: Eddasa\_21 Start: 16017, Stop: 17219, Start Num: 4

Candidate Starts for Eddasa\_21:

(Start: 4 @16017 has 105 MA's), (7, 16044), (24, 16227), (29, 16290), (36, 16389), (39, 16416), (46, 16485), (48, 16515), (81, 16932), (82, 16938), (85, 16977), (89, 16998), (94, 17028), (95, 17037), (98, 17070), (106, 17151), (112, 17193), (113, 17196), (115, 17205), (116, 17211),

Gene: Ejemplo\_20 Start: 15827, Stop: 17038, Start Num: 4

Candidate Starts for Ejemplo\_20:

(Start: 4 @15827 has 105 MA's), (7, 15854), (24, 16037), (25, 16049), (26, 16052), (36, 16199), (39, 16226), (50, 16349), (55, 16406), (62, 16481), (63, 16508), (66, 16538), (69, 16565), (72, 16616), (82, 16748), (85, 16787), (88, 16805), (93, 16835), (94, 16838), (95, 16847), (98, 16880), (100, 16889), (105, 16940), (111, 17000), (115, 17024), (116, 17030),

Gene: ElGato\_21 Start: 16263, Stop: 17480, Start Num: 4

Candidate Starts for ElGato\_21:

(Start: 4 @16263 has 105 MA's), (7, 16290), (10, 16341), (24, 16473), (32, 16575), (46, 16731), (48, 16761), (50, 16785), (53, 16818), (55, 16842), (62, 16917), (67, 16980), (79, 17169), (82, 17184), (83, 17199), (89, 17244), (92, 17265), (95, 17283), (105, 17376), (107, 17406), (115, 17466), (116, 17472),

Gene: Emaanora\_22 Start: 15830, Stop: 17041, Start Num: 4

Candidate Starts for Emaanora\_22:

(Start: 4 @15830 has 105 MA's), (24, 16040), (25, 16052), (26, 16055), (29, 16103), (36, 16202), (39, 16229), (46, 16298), (50, 16352), (55, 16409), (62, 16484), (63, 16511), (66, 16541), (68, 16565), (72, 16619), (76, 16697), (82, 16751), (85, 16790), (88, 16808), (94, 16841), (95, 16850), (98, 16883), (100, 16892), (105, 16943), (115, 17027), (116, 17033),

Gene: EnochSoames\_22 Start: 16013, Stop: 17215, Start Num: 4

Candidate Starts for EnochSoames\_22:

(Start: 4 @16013 has 105 MA's), (7, 16040), (24, 16223), (29, 16286), (36, 16385), (39, 16412), (46, 16481), (48, 16511), (59, 16631), (81, 16928), (82, 16934), (85, 16973), (89, 16994), (94, 17024), (95, 17033), (98, 17066), (106, 17147), (112, 17189), (113, 17192), (115, 17201), (116, 17207),

Gene: Esperer\_20 Start: 15854, Stop: 17068, Start Num: 4

Candidate Starts for Esperer\_20:

(Start: 4 @15854 has 105 MA's), (7, 15881), (24, 16064), (29, 16127), (36, 16226), (39, 16253), (46, 16322), (48, 16352), (59, 16472), (67, 16571), (81, 16769), (82, 16775), (85, 16814), (90, 16838), (94, 16865), (95, 16874), (98, 16907), (105, 16967), (107, 16997), (113, 17045), (115, 17054), (116, 17060),

Gene: GirlDinner\_20 Start: 15565, Stop: 16776, Start Num: 4

Candidate Starts for GirlDinner\_20:

(Start: 4 @15565 has 105 MA's), (24, 15775), (25, 15787), (26, 15790), (30, 15850), (39, 15964), (42, 15979), (45, 16030), (61, 16216), (67, 16282), (68, 16300), (69, 16303), (77, 16441), (82, 16486), (83, 16501), (89, 16546), (90, 16549), (91, 16564), (94, 16576), (95, 16585), (105, 16678), (115, 16762), (116, 16768),

Gene: Goby\_20 Start: 15844, Stop: 17055, Start Num: 4

Candidate Starts for Goby\_20:

(Start: 4 @15844 has 105 MA's), (7, 15871), (17, 15997), (20, 16024), (24, 16054), (29, 16117), (36, 16216), (39, 16243), (46, 16312), (50, 16366), (52, 16378), (55, 16423), (61, 16495), (62, 16498), (67, 16561), (69, 16582), (74, 16657), (81, 16759), (82, 16765), (84, 16801), (85, 16804), (88, 16822), (95, 16864), (114, 17038), (115, 17041), (116, 17047),

Gene: Godpower\_21 Start: 15855, Stop: 17066, Start Num: 4

Candidate Starts for Godpower\_21:

(Start: 4 @15855 has 105 MA's), (7, 15882), (24, 16065), (25, 16077), (26, 16080), (29, 16128), (36, 16227), (39, 16254), (46, 16323), (50, 16377), (55, 16434), (62, 16509), (66, 16566), (69, 16593), (82, 16776), (85, 16815), (93, 16863), (94, 16866), (95, 16875), (98, 16908), (115, 17052), (116, 17058),

Gene: GreenWeasel\_22 Start: 16555, Stop: 17760, Start Num: 4

Candidate Starts for GreenWeasel\_22:

(1, 16537), (Start: 2 @16549 has 1 MA's), (Start: 4 @16555 has 105 MA's), (13, 16642), (21, 16741), (25, 16777), (30, 16840), (39, 16954), (41, 16966), (45, 17020), (46, 17023), (48, 17053), (50, 17077), (55, 17134), (59, 17173), (61, 17206), (62, 17209), (65, 17257), (82, 17476), (83, 17491), (89, 17536), (94, 17566), (97, 17581), (100, 17617), (113, 17737), (115, 17746), (116, 17752),

Gene: Haizum\_20 Start: 16338, Stop: 17552, Start Num: 4

Candidate Starts for Haizum\_20:

(Start: 4 @16338 has 105 MA's), (7, 16365), (14, 16446), (21, 16524), (22, 16542), (25, 16560), (26, 16563), (30, 16623), (39, 16737), (50, 16860), (55, 16917), (77, 17214), (82, 17259), (90, 17322), (105, 17451), (113, 17529), (115, 17538), (116, 17544),

Gene: Hank144\_21 Start: 15960, Stop: 17171, Start Num: 4

Candidate Starts for Hank144\_21:

(Start: 4 @15960 has 105 MA's), (14, 16068), (15, 16083), (24, 16170), (25, 16182), (26, 16185), (30, 16245), (39, 16359), (42, 16374), (50, 16482), (61, 16611), (67, 16677), (69, 16698), (70, 16719), (77, 16836), (81, 16875), (82, 16881), (83, 16896), (94, 16971), (95, 16980), (105, 17073), (115, 17157), (116, 17163),

Gene: Hippo\_20 Start: 15830, Stop: 17041, Start Num: 4

Candidate Starts for Hippo\_20:

(Start: 4 @15830 has 105 MA's), (24, 16040), (25, 16052), (26, 16055), (29, 16103), (36, 16202), (39, 16229), (46, 16298), (50, 16352), (55, 16409), (62, 16484), (63, 16511), (66, 16541), (68, 16565), (72, 16619), (76, 16697), (82, 16751), (85, 16790), (88, 16808), (94, 16841), (95, 16850), (98, 16883), (100, 16892), (105, 16943), (107, 16973), (115, 17027), (116, 17033),

Gene: Hydra\_22 Start: 16382, Stop: 17596, Start Num: 4

Candidate Starts for Hydra\_22:

(Start: 4 @16382 has 105 MA's), (7, 16409), (24, 16592), (29, 16655), (36, 16754), (39, 16781), (46, 16850), (48, 16880), (59, 17000), (67, 17099), (81, 17297), (82, 17303), (85, 17342), (90, 17366), (94, 17393), (95, 17402), (98, 17435), (105, 17495), (107, 17525), (113, 17573), (115, 17582), (116, 17588),

Gene: Indigo\_20 Start: 15854, Stop: 17068, Start Num: 4

Candidate Starts for Indigo\_20:

(Start: 4 @15854 has 105 MA's), (7, 15881), (24, 16064), (29, 16127), (36, 16226), (39, 16253), (46, 16322), (48, 16352), (59, 16472), (67, 16571), (81, 16769), (82, 16775), (85, 16814), (90, 16838), (94, 16865), (95, 16874), (98, 16907), (105, 16967), (107, 16997), (113, 17045), (115, 17054), (116, 17060),

Gene: Issmi\_21 Start: 16769, Stop: 17983, Start Num: 4

Candidate Starts for Issmi\_21:

(Start: 4 @16769 has 105 MA's), (7, 16796), (15, 16892), (22, 16973), (24, 16979), (25, 16991), (26, 16994), (30, 17054), (31, 17066), (39, 17168), (41, 17180), (46, 17237), (50, 17291), (55, 17348), (67, 17486), (82, 17690), (90, 17753), (94, 17780), (96, 17792), (105, 17882), (113, 17960), (115, 17969), (116, 17975),

Gene: Itza\_20 Start: 16200, Stop: 17420, Start Num: 4

Candidate Starts for Itza\_20:

(Start: 4 @16200 has 105 MA's), (8, 16242), (13, 16287), (18, 16356), (22, 16404), (24, 16410), (38, 16596), (39, 16599), (43, 16623), (46, 16668), (50, 16722), (63, 16881), (67, 16917), (78, 17100), (83, 17136), (85, 17160), (88, 17178), (90, 17184), (95, 17220), (100, 17262), (112, 17388), (115, 17406),

(116, 17412),

Gene: Izzy\_21 Start: 16064, Stop: 17266, Start Num: 4

Candidate Starts for Izzy\_21:

(Start: 4 @16064 has 105 MA's), (7, 16091), (24, 16274), (29, 16337), (36, 16436), (39, 16463), (46, 16532), (48, 16562), (81, 16979), (82, 16985), (85, 17024), (89, 17045), (94, 17075), (95, 17084), (98, 17117), (106, 17198), (112, 17240), (113, 17243), (115, 17252), (116, 17258),

Gene: Janus\_21 Start: 15903, Stop: 17114, Start Num: 4

Candidate Starts for Janus\_21:

(Start: 4 @15903 has 105 MA's), (24, 16113), (25, 16125), (26, 16128), (30, 16188), (31, 16200), (39, 16302), (42, 16317), (45, 16368), (60, 16542), (61, 16554), (67, 16620), (68, 16638), (69, 16641), (77, 16779), (82, 16824), (83, 16839), (89, 16884), (90, 16887), (94, 16914), (95, 16923), (105, 17016), (115, 17100), (116, 17106),

Gene: Jash\_21 Start: 16017, Stop: 17219, Start Num: 4

Candidate Starts for Jash\_21:

(Start: 4 @16017 has 105 MA's), (7, 16044), (24, 16227), (29, 16290), (36, 16389), (39, 16416), (46, 16485), (48, 16515), (81, 16932), (82, 16938), (85, 16977), (89, 16998), (94, 17028), (95, 17037), (98, 17070), (106, 17151), (112, 17193), (113, 17196), (115, 17205), (116, 17211),

Gene: Jevington\_22 Start: 16207, Stop: 17418, Start Num: 4

Candidate Starts for Jevington\_22:

(Start: 4 @16207 has 105 MA's), (11, 16288), (24, 16417), (25, 16429), (30, 16492), (39, 16606), (42, 16621), (50, 16729), (53, 16762), (55, 16786), (61, 16858), (67, 16924), (68, 16942), (69, 16945), (70, 16966), (77, 17083), (82, 17128), (83, 17143), (95, 17227), (97, 17233), (103, 17308), (105, 17320), (113, 17395), (115, 17404), (116, 17410),

Gene: Kaine\_20 Start: 16241, Stop: 17458, Start Num: 4

Candidate Starts for Kaine\_20:

(Start: 4 @16241 has 105 MA's), (7, 16268), (10, 16319), (24, 16451), (26, 16466), (32, 16553), (36, 16613), (46, 16709), (48, 16739), (53, 16796), (55, 16820), (62, 16895), (63, 16922), (67, 16958), (79, 17147), (82, 17162), (83, 17177), (89, 17222), (92, 17243), (95, 17261), (105, 17354), (107, 17384), (115, 17444), (116, 17450),

Gene: Katalie\_21 Start: 16096, Stop: 17307, Start Num: 4

Candidate Starts for Katalie\_21:

(Start: 4 @16096 has 105 MA's), (7, 16123), (20, 16276), (24, 16306), (29, 16369), (36, 16468), (39, 16495), (46, 16564), (55, 16675), (61, 16747), (62, 16750), (63, 16777), (67, 16813), (69, 16834), (82, 17017), (84, 17053), (85, 17056), (88, 17074), (95, 17116), (105, 17209), (115, 17293), (116, 17299),

Gene: Kromp\_19 Start: 17084, Stop: 18241, Start Num: 6

Candidate Starts for Kromp\_19:

(Start: 6 @17084 has 1 MA's), (17, 17225), (25, 17294), (40, 17492), (45, 17549), (49, 17588), (58, 17687), (73, 17888), (75, 17900), (91, 18083), (99, 18140), (103, 18185), (104, 18188),

Gene: Lannister\_21 Start: 15861, Stop: 17075, Start Num: 4

Candidate Starts for Lannister\_21:

(Start: 4 @15861 has 105 MA's), (7, 15888), (24, 16071), (25, 16083), (29, 16134), (36, 16233), (39, 16260), (46, 16329), (50, 16383), (55, 16440), (62, 16515), (63, 16542), (66, 16572), (68, 16596), (82, 16782), (85, 16821), (88, 16839), (93, 16869), (94, 16872), (95, 16881), (98, 16914), (100, 16923), (114, 17058), (115, 17061), (116, 17067),

Gene: Legacy\_20 Start: 15825, Stop: 17039, Start Num: 4

Candidate Starts for Legacy\_20:

(Start: 4 @15825 has 105 MA's), (7, 15852), (24, 16035), (29, 16098), (36, 16197), (39, 16224), (46, 16293), (48, 16323), (59, 16443), (67, 16542), (81, 16740), (82, 16746), (85, 16785), (90, 16809), (94, 16836), (95, 16845), (98, 16878), (105, 16938), (107, 16968), (113, 17016), (115, 17025), (116, 17031),

Gene: Leviticus\_20 Start: 15854, Stop: 17068, Start Num: 4

Candidate Starts for Leviticus\_20:

(Start: 4 @15854 has 105 MA's), (7, 15881), (24, 16064), (29, 16127), (36, 16226), (39, 16253), (46, 16322), (48, 16352), (59, 16472), (67, 16571), (81, 16769), (82, 16775), (85, 16814), (90, 16838), (94, 16865), (95, 16874), (98, 16907), (105, 16967), (107, 16997), (113, 17045), (115, 17054), (116, 17060),

Gene: Lika\_20 Start: 15859, Stop: 17070, Start Num: 4

Candidate Starts for Lika\_20:

(Start: 4 @15859 has 105 MA's), (7, 15886), (24, 16069), (25, 16081), (26, 16084), (29, 16132), (36, 16231), (39, 16258), (46, 16327), (50, 16381), (55, 16438), (62, 16513), (66, 16570), (69, 16597), (82, 16780), (85, 16819), (93, 16867), (94, 16870), (95, 16879), (98, 16912), (115, 17056), (116, 17062),

Gene: Loofah\_21 Start: 15822, Stop: 17033, Start Num: 4

Candidate Starts for Loofah\_21:

(Start: 4 @15822 has 105 MA's), (14, 15930), (24, 16032), (25, 16044), (26, 16047), (30, 16107), (39, 16221), (42, 16236), (50, 16344), (53, 16377), (55, 16401), (61, 16473), (63, 16503), (68, 16557), (69, 16560), (70, 16581), (77, 16698), (82, 16743), (83, 16758), (95, 16842), (96, 16845), (97, 16848), (100, 16884), (103, 16923), (105, 16935), (108, 16974), (112, 17007), (113, 17010), (115, 17019), (116, 17025),

Gene: Lorelei\_20 Start: 15829, Stop: 17040, Start Num: 4

Candidate Starts for Lorelei\_20:

(Start: 4 @15829 has 105 MA's), (7, 15856), (20, 16009), (24, 16039), (29, 16102), (36, 16201), (39, 16228), (46, 16297), (50, 16351), (51, 16354), (52, 16363), (55, 16408), (61, 16480), (62, 16483), (67, 16546), (69, 16567), (74, 16642), (76, 16696), (81, 16744), (82, 16750), (84, 16786), (85, 16789), (88, 16807), (95, 16849), (114, 17023), (115, 17026), (116, 17032),

Gene: Maneekul\_20 Start: 15826, Stop: 17037, Start Num: 4

Candidate Starts for Maneekul\_20:

(Start: 4 @15826 has 105 MA's), (7, 15853), (24, 16036), (25, 16048), (26, 16051), (36, 16198), (39, 16225), (50, 16348), (55, 16405), (62, 16480), (63, 16507), (66, 16537), (69, 16564), (72, 16615), (82, 16747), (85, 16786), (88, 16804), (93, 16834), (94, 16837), (95, 16846), (98, 16879), (100, 16888), (105, 16939), (111, 16999), (115, 17023), (116, 17029),

Gene: Marav\_23 Start: 16557, Stop: 17768, Start Num: 4

Candidate Starts for Marav\_23:

(Start: 4 @16557 has 105 MA's), (11, 16638), (24, 16767), (25, 16779), (30, 16842), (39, 16956), (42, 16971), (50, 17079), (53, 17112), (61, 17208), (63, 17238), (67, 17274), (68, 17292), (69, 17295), (70, 17316), (77, 17433), (82, 17478), (83, 17493), (95, 17577), (97, 17583), (103, 17658), (105, 17670), (113, 17745), (115, 17754), (116, 17760),

Gene: Nabi\_20 Start: 15829, Stop: 17040, Start Num: 4

Candidate Starts for Nabi\_20:

(Start: 4 @15829 has 105 MA's), (7, 15856), (20, 16009), (24, 16039), (29, 16102), (36, 16201), (39, 16228), (46, 16297), (50, 16351), (51, 16354), (52, 16363), (55, 16408), (61, 16480), (62, 16483), (67,

16546), (69, 16567), (74, 16642), (76, 16696), (81, 16744), (82, 16750), (84, 16786), (85, 16789), (88, 16807), (95, 16849), (114, 17023), (115, 17026), (116, 17032),

Gene: Nanodon\_22 Start: 16037, Stop: 17248, Start Num: 4

Candidate Starts for Nanodon\_22:

(Start: 4 @16037 has 105 MA's), (7, 16064), (20, 16217), (24, 16247), (29, 16310), (36, 16409), (37, 16421), (39, 16436), (46, 16505), (50, 16559), (61, 16688), (62, 16691), (67, 16754), (68, 16772), (82, 16958), (84, 16994), (85, 16997), (88, 17015), (95, 17057), (105, 17150), (115, 17234), (116, 17240),

Gene: Nerdos\_20 Start: 15854, Stop: 17068, Start Num: 4

Candidate Starts for Nerdos\_20:

(Start: 4 @15854 has 105 MA's), (7, 15881), (24, 16064), (29, 16127), (36, 16226), (39, 16253), (46, 16322), (48, 16352), (59, 16472), (67, 16571), (81, 16769), (82, 16775), (85, 16814), (90, 16838), (94, 16865), (95, 16874), (98, 16907), (105, 16967), (107, 16997), (113, 17045), (115, 17054), (116, 17060),

Gene: Nishikigoi\_20 Start: 16338, Stop: 17552, Start Num: 4

Candidate Starts for Nishikigoi\_20:

(Start: 4 @16338 has 105 MA's), (7, 16365), (14, 16446), (21, 16524), (22, 16542), (25, 16560), (26, 16563), (30, 16623), (39, 16737), (46, 16806), (50, 16860), (55, 16917), (77, 17214), (82, 17259), (90, 17322), (105, 17451), (113, 17529), (115, 17538), (116, 17544),

Gene: Oliynyk\_21 Start: 16017, Stop: 17219, Start Num: 4

Candidate Starts for Oliynyk\_21:

(Start: 4 @16017 has 105 MA's), (7, 16044), (24, 16227), (29, 16290), (36, 16389), (39, 16416), (46, 16485), (48, 16515), (81, 16932), (82, 16938), (85, 16977), (89, 16998), (94, 17028), (95, 17037), (98, 17070), (106, 17151), (112, 17193), (113, 17196), (115, 17205), (116, 17211),

Gene: Omar\_21 Start: 16673, Stop: 17887, Start Num: 4

Candidate Starts for Omar\_21:

(Start: 4 @16673 has 105 MA's), (7, 16700), (21, 16859), (22, 16877), (24, 16883), (25, 16895), (26, 16898), (30, 16958), (39, 17072), (46, 17141), (50, 17195), (53, 17228), (55, 17252), (63, 17354), (64, 17360), (79, 17579), (80, 17585), (82, 17594), (96, 17696), (105, 17786), (113, 17864), (115, 17873), (116, 17879),

Gene: Ozzie\_20 Start: 15834, Stop: 17048, Start Num: 4

Candidate Starts for Ozzie\_20:

(Start: 4 @15834 has 105 MA's), (7, 15861), (24, 16044), (29, 16107), (36, 16206), (39, 16233), (46, 16302), (48, 16332), (59, 16452), (67, 16551), (81, 16749), (82, 16755), (85, 16794), (90, 16818), (94, 16845), (95, 16854), (98, 16887), (105, 16947), (107, 16977), (113, 17025), (115, 17034), (116, 17040),

Gene: OzzyJ\_21 Start: 15821, Stop: 17032, Start Num: 4

Candidate Starts for OzzyJ\_21:

(Start: 4 @15821 has 105 MA's), (24, 16031), (25, 16043), (26, 16046), (29, 16094), (36, 16193), (39, 16220), (46, 16289), (50, 16343), (55, 16400), (62, 16475), (63, 16502), (66, 16532), (68, 16556), (72, 16610), (76, 16688), (82, 16742), (85, 16781), (88, 16799), (94, 16832), (95, 16841), (98, 16874), (100, 16883), (105, 16934), (115, 17018), (116, 17024),

Gene: Pablito\_20 Start: 15663, Stop: 16874, Start Num: 4

Candidate Starts for Pablito\_20:

(Start: 4 @15663 has 105 MA's), (14, 15771), (15, 15786), (24, 15873), (25, 15885), (26, 15888), (30, 15948), (39, 16062), (42, 16077), (50, 16185), (53, 16218), (61, 16314), (63, 16344), (67, 16380), (68,

16398), (69, 16401), (70, 16422), (77, 16539), (82, 16584), (83, 16599), (89, 16644), (94, 16674), (103, 16764), (105, 16776), (112, 16848), (113, 16851), (115, 16860), (116, 16866),

Gene: Paedore\_20 Start: 15822, Stop: 17033, Start Num: 4

Candidate Starts for Paedore\_20:

(Start: 4 @15822 has 105 MA's), (14, 15930), (24, 16032), (25, 16044), (26, 16047), (30, 16107), (39, 16221), (42, 16236), (50, 16344), (53, 16377), (55, 16401), (61, 16473), (63, 16503), (68, 16557), (69, 16560), (70, 16581), (77, 16698), (82, 16743), (83, 16758), (95, 16842), (96, 16845), (97, 16848), (100, 16884), (103, 16923), (105, 16935), (108, 16974), (112, 17007), (113, 17010), (115, 17019), (116, 17025),

Gene: Paolo\_22 Start: 16220, Stop: 17431, Start Num: 4

Candidate Starts for Paolo\_22:

(Start: 4 @16220 has 105 MA's), (11, 16301), (24, 16430), (25, 16442), (30, 16505), (39, 16619), (42, 16634), (50, 16742), (53, 16775), (55, 16799), (61, 16871), (67, 16937), (68, 16955), (69, 16958), (70, 16979), (77, 17096), (82, 17141), (83, 17156), (95, 17240), (97, 17246), (103, 17321), (105, 17333), (113, 17408), (115, 17417), (116, 17423),

Gene: Pavo\_21 Start: 16533, Stop: 17750, Start Num: 4

Candidate Starts for Pavo\_21:

(Start: 4 @16533 has 105 MA's), (7, 16560), (10, 16611), (24, 16743), (32, 16845), (46, 17001), (48, 17031), (50, 17055), (53, 17088), (55, 17112), (62, 17187), (67, 17250), (82, 17454), (83, 17469), (89, 17514), (92, 17535), (95, 17553), (105, 17646), (107, 17676), (115, 17736), (116, 17742),

Gene: Phettuccine\_20 Start: 15854, Stop: 17068, Start Num: 4

Candidate Starts for Phettuccine\_20:

(Start: 4 @15854 has 105 MA's), (7, 15881), (24, 16064), (29, 16127), (36, 16226), (39, 16253), (46, 16322), (48, 16352), (59, 16472), (67, 16571), (81, 16769), (82, 16775), (85, 16814), (90, 16838), (94, 16865), (95, 16874), (98, 16907), (105, 16967), (107, 16997), (113, 17045), (115, 17054), (116, 17060),

Gene: Provolone\_21 Start: 16263, Stop: 17480, Start Num: 4

Candidate Starts for Provolone\_21:

(Start: 4 @16263 has 105 MA's), (7, 16290), (10, 16341), (24, 16473), (32, 16575), (46, 16731), (48, 16761), (50, 16785), (53, 16818), (55, 16842), (62, 16917), (67, 16980), (70, 17022), (79, 17169), (82, 17184), (83, 17199), (89, 17244), (92, 17265), (95, 17283), (105, 17376), (107, 17406), (115, 17466), (116, 17472),

Gene: Puginator\_22 Start: 16265, Stop: 17476, Start Num: 4

Candidate Starts for Puginator\_22:

(Start: 4 @16265 has 105 MA's), (24, 16475), (25, 16487), (30, 16550), (39, 16664), (42, 16679), (50, 16787), (53, 16820), (55, 16844), (61, 16916), (67, 16982), (68, 17000), (69, 17003), (70, 17024), (77, 17141), (82, 17186), (83, 17201), (103, 17366), (105, 17378), (113, 17453), (115, 17462), (116, 17468),

Gene: R4\_20 Start: 15904, Stop: 17115, Start Num: 4

Candidate Starts for R4\_20:

(Start: 4 @15904 has 105 MA's), (14, 16012), (24, 16114), (25, 16126), (26, 16129), (30, 16189), (39, 16303), (42, 16318), (50, 16426), (53, 16459), (55, 16483), (61, 16555), (63, 16585), (68, 16639), (69, 16642), (70, 16663), (77, 16780), (82, 16825), (83, 16840), (95, 16924), (96, 16927), (97, 16930), (100, 16966), (103, 17005), (105, 17017), (108, 17056), (113, 17092), (115, 17101), (116, 17107),

Gene: Rana\_20 Start: 15829, Stop: 17040, Start Num: 4



Candidate Starts for Rana\_20:

(Start: 4 @15829 has 105 MA's), (7, 15856), (20, 16009), (24, 16039), (29, 16102), (36, 16201), (39, 16228), (46, 16297), (50, 16351), (51, 16354), (52, 16363), (55, 16408), (61, 16480), (62, 16483), (67, 16546), (69, 16567), (74, 16642), (76, 16696), (81, 16744), (82, 16750), (84, 16786), (85, 16789), (88, 16807), (95, 16849), (114, 17023), (115, 17026), (116, 17032),

Gene: RedBear\_22 Start: 16096, Stop: 17307, Start Num: 4

Candidate Starts for RedBear\_22:

(Start: 4 @16096 has 105 MA's), (7, 16123), (20, 16276), (24, 16306), (29, 16369), (36, 16468), (39, 16495), (46, 16564), (55, 16675), (61, 16747), (62, 16750), (63, 16777), (67, 16813), (69, 16834), (82, 17017), (84, 17053), (85, 17056), (88, 17074), (95, 17116), (105, 17209), (115, 17293), (116, 17299),

Gene: Rusticus\_21 Start: 16017, Stop: 17219, Start Num: 4

Candidate Starts for Rusticus\_21:

(Start: 4 @16017 has 105 MA's), (7, 16044), (24, 16227), (29, 16290), (36, 16389), (39, 16416), (46, 16485), (48, 16515), (81, 16932), (82, 16938), (85, 16977), (89, 16998), (94, 17028), (95, 17037), (98, 17070), (106, 17151), (112, 17193), (113, 17196), (115, 17205), (116, 17211),

Gene: Saftant\_20 Start: 16811, Stop: 18028, Start Num: 4

Candidate Starts for Saftant\_20:

(Start: 4 @16811 has 105 MA's), (9, 16886), (10, 16889), (24, 17021), (46, 17279), (48, 17309), (50, 17333), (53, 17366), (55, 17390), (63, 17492), (67, 17528), (82, 17732), (83, 17747), (89, 17792), (94, 17822), (95, 17831), (106, 17945), (107, 17954), (115, 18014), (116, 18020),

Gene: SarahRose\_20 Start: 15827, Stop: 17038, Start Num: 4

Candidate Starts for SarahRose\_20:

(Start: 4 @15827 has 105 MA's), (24, 16037), (25, 16049), (26, 16052), (29, 16100), (36, 16199), (39, 16226), (46, 16295), (50, 16349), (55, 16406), (62, 16481), (63, 16508), (66, 16538), (68, 16562), (72, 16616), (76, 16694), (82, 16748), (88, 16805), (94, 16838), (95, 16847), (98, 16880), (100, 16889), (105, 16940), (115, 17024), (116, 17030),

Gene: Snorlax\_20 Start: 15830, Stop: 17041, Start Num: 4

Candidate Starts for Snorlax\_20:

(Start: 4 @15830 has 105 MA's), (24, 16040), (25, 16052), (26, 16055), (29, 16103), (36, 16202), (39, 16229), (46, 16298), (50, 16352), (55, 16409), (62, 16484), (63, 16511), (66, 16541), (68, 16565), (72, 16619), (76, 16697), (82, 16751), (85, 16790), (88, 16808), (94, 16841), (95, 16850), (98, 16883), (100, 16892), (105, 16943), (115, 17027), (116, 17033),

Gene: South40\_21 Start: 16096, Stop: 17307, Start Num: 4

Candidate Starts for South40\_21:

(Start: 4 @16096 has 105 MA's), (7, 16123), (20, 16276), (24, 16306), (29, 16369), (36, 16468), (39, 16495), (46, 16564), (55, 16675), (61, 16747), (62, 16750), (63, 16777), (67, 16813), (69, 16834), (82, 17017), (84, 17053), (85, 17056), (88, 17074), (95, 17116), (105, 17209), (115, 17293), (116, 17299),

Gene: Speedwell\_25 Start: 18557, Stop: 19774, Start Num: 4

Candidate Starts for Speedwell\_25:

(Start: 4 @18557 has 105 MA's), (7, 18584), (10, 18635), (24, 18767), (28, 18827), (29, 18830), (36, 18929), (46, 19025), (53, 19112), (62, 19211), (63, 19238), (67, 19274), (82, 19478), (83, 19493), (89, 19538), (95, 19577), (96, 19580), (106, 19691), (115, 19760), (116, 19766),

Gene: SqueakyClean\_21 Start: 15829, Stop: 17040, Start Num: 4

Candidate Starts for SqueakyClean\_21:

(Start: 4 @15829 has 105 MA's), (24, 16039), (25, 16051), (26, 16054), (30, 16114), (31, 16126), (39, 16228), (42, 16243), (45, 16294), (61, 16480), (67, 16546), (69, 16567), (77, 16705), (82, 16750), (83, 16765), (89, 16810), (90, 16813), (94, 16840), (95, 16849), (105, 16942), (115, 17026), (116, 17032),

Gene: Sujidade\_21 Start: 16135, Stop: 17346, Start Num: 4

Candidate Starts for Sujidade\_21:

(Start: 4 @16135 has 105 MA's), (7, 16162), (24, 16345), (25, 16357), (26, 16360), (29, 16408), (36, 16507), (39, 16534), (46, 16603), (50, 16657), (55, 16714), (62, 16789), (66, 16846), (69, 16873), (82, 17056), (85, 17095), (93, 17143), (94, 17146), (95, 17155), (98, 17188), (115, 17332), (116, 17338),

Gene: SunsetPointe\_20 Start: 15844, Stop: 17058, Start Num: 4

Candidate Starts for SunsetPointe\_20:

(Start: 4 @15844 has 105 MA's), (7, 15871), (24, 16054), (29, 16117), (36, 16216), (39, 16243), (46, 16312), (48, 16342), (59, 16462), (67, 16561), (81, 16759), (82, 16765), (85, 16804), (90, 16828), (94, 16855), (95, 16864), (98, 16897), (105, 16957), (107, 16987), (113, 17035), (115, 17044), (116, 17050),

Gene: Superstar\_23 Start: 17541, Stop: 18755, Start Num: 4

Candidate Starts for Superstar\_23:

(Start: 4 @17541 has 105 MA's), (7, 17568), (21, 17727), (25, 17763), (26, 17766), (30, 17826), (39, 17940), (46, 18009), (50, 18063), (55, 18120), (67, 18258), (82, 18462), (100, 18603), (105, 18654), (113, 18732), (115, 18741), (116, 18747),

Gene: TagePhighter\_21 Start: 15830, Stop: 17041, Start Num: 4

Candidate Starts for TagePhighter\_21:

(Start: 4 @15830 has 105 MA's), (24, 16040), (25, 16052), (26, 16055), (29, 16103), (36, 16202), (39, 16229), (46, 16298), (50, 16352), (55, 16409), (62, 16484), (63, 16511), (66, 16541), (68, 16565), (72, 16619), (76, 16697), (82, 16751), (85, 16790), (88, 16808), (94, 16841), (95, 16850), (98, 16883), (100, 16892), (105, 16943), (115, 17027), (116, 17033),

Gene: Teagster\_18 Start: 15351, Stop: 16520, Start Num: 3

Candidate Starts for Teagster\_18:

(Start: 3 @15351 has 1 MA's), (5, 15357), (7, 15381), (12, 15438), (14, 15462), (25, 15579), (27, 15591), (30, 15642), (31, 15654), (33, 15672), (39, 15753), (44, 15798), (46, 15822), (101, 16431), (109, 16509),

Gene: Tefunt\_20 Start: 16338, Stop: 17552, Start Num: 4

Candidate Starts for Tefunt\_20:

(Start: 4 @16338 has 105 MA's), (7, 16365), (14, 16446), (21, 16524), (22, 16542), (25, 16560), (26, 16563), (30, 16623), (39, 16737), (50, 16860), (55, 16917), (77, 17214), (82, 17259), (90, 17322), (105, 17451), (113, 17529), (115, 17538), (116, 17544),

Gene: Thestral\_21 Start: 15797, Stop: 17008, Start Num: 4

Candidate Starts for Thestral\_21:

(Start: 4 @15797 has 105 MA's), (24, 16007), (25, 16019), (26, 16022), (30, 16082), (39, 16196), (42, 16211), (45, 16262), (55, 16376), (61, 16448), (67, 16514), (69, 16535), (77, 16673), (82, 16718), (83, 16733), (92, 16799), (95, 16817), (100, 16859), (102, 16886), (105, 16910), (115, 16994), (116, 17000),

Gene: TinaBelcher\_20 Start: 15745, Stop: 16956, Start Num: 4

Candidate Starts for TinaBelcher\_20:

(Start: 4 @15745 has 105 MA's), (24, 15955), (25, 15967), (26, 15970), (30, 16030), (39, 16144), (42, 16159), (45, 16210), (50, 16267), (55, 16324), (61, 16396), (67, 16462), (69, 16483), (70, 16504), (77,

16621), (82, 16666), (83, 16681), (92, 16747), (95, 16765), (100, 16807), (102, 16834), (105, 16858), (115, 16942), (116, 16948),

Gene: Toma\_20 Start: 15844, Stop: 17055, Start Num: 4

Candidate Starts for Toma\_20:

(Start: 4 @15844 has 105 MA's), (7, 15871), (17, 15997), (20, 16024), (24, 16054), (29, 16117), (36, 16216), (39, 16243), (46, 16312), (50, 16366), (52, 16378), (55, 16423), (61, 16495), (62, 16498), (67, 16561), (69, 16582), (74, 16657), (81, 16759), (82, 16765), (84, 16801), (85, 16804), (88, 16822), (95, 16864), (114, 17038), (115, 17041), (116, 17047),

Gene: Triste\_20 Start: 15821, Stop: 17032, Start Num: 4

Candidate Starts for Triste\_20:

(Start: 4 @15821 has 105 MA's), (24, 16031), (25, 16043), (26, 16046), (29, 16094), (36, 16193), (39, 16220), (46, 16289), (50, 16343), (55, 16400), (62, 16475), (63, 16502), (66, 16532), (68, 16556), (72, 16610), (76, 16688), (82, 16742), (85, 16781), (88, 16799), (94, 16832), (95, 16841), (98, 16874), (100, 16883), (105, 16934), (115, 17018), (116, 17024),

Gene: Triumph\_22 Start: 15746, Stop: 16957, Start Num: 4

Candidate Starts for Triumph\_22:

(Start: 4 @15746 has 105 MA's), (18, 15902), (24, 15956), (25, 15968), (26, 15971), (30, 16031), (39, 16145), (42, 16160), (45, 16211), (55, 16325), (60, 16385), (61, 16397), (67, 16463), (69, 16484), (77, 16622), (80, 16658), (82, 16667), (83, 16682), (89, 16727), (90, 16730), (94, 16757), (95, 16766), (105, 16859), (110, 16907), (113, 16934), (115, 16943), (116, 16949),

Gene: TrvxScott\_19 Start: 15747, Stop: 16958, Start Num: 4

Candidate Starts for TrvxScott\_19:

(Start: 4 @15747 has 105 MA's), (24, 15957), (25, 15969), (26, 15972), (30, 16032), (39, 16146), (42, 16161), (45, 16212), (50, 16269), (55, 16326), (61, 16398), (67, 16464), (69, 16485), (77, 16623), (82, 16668), (83, 16683), (92, 16749), (95, 16767), (100, 16809), (102, 16836), (105, 16860), (115, 16944), (116, 16950),

Gene: TuanPN\_20 Start: 15827, Stop: 17038, Start Num: 4

Candidate Starts for TuanPN\_20:

(Start: 4 @15827 has 105 MA's), (7, 15854), (24, 16037), (25, 16049), (26, 16052), (36, 16199), (39, 16226), (50, 16349), (55, 16406), (62, 16481), (63, 16508), (66, 16538), (69, 16565), (72, 16616), (82, 16748), (85, 16787), (88, 16805), (93, 16835), (94, 16838), (95, 16847), (98, 16880), (100, 16889), (105, 16940), (111, 17000), (115, 17024), (116, 17030),

Gene: Unstoppable\_20 Start: 15845, Stop: 17059, Start Num: 4

Candidate Starts for Unstoppable\_20:

(Start: 4 @15845 has 105 MA's), (7, 15872), (24, 16055), (29, 16118), (36, 16217), (39, 16244), (46, 16313), (48, 16343), (59, 16463), (67, 16562), (81, 16760), (82, 16766), (85, 16805), (90, 16829), (94, 16856), (95, 16865), (98, 16898), (105, 16958), (107, 16988), (113, 17036), (115, 17045), (116, 17051),

Gene: Urza\_20 Start: 16212, Stop: 17432, Start Num: 4

Candidate Starts for Urza\_20:

(Start: 4 @16212 has 105 MA's), (8, 16254), (13, 16299), (18, 16368), (22, 16416), (24, 16422), (38, 16608), (39, 16611), (43, 16635), (46, 16680), (50, 16734), (63, 16893), (67, 16929), (78, 17112), (83, 17148), (85, 17172), (88, 17190), (90, 17196), (95, 17232), (100, 17274), (112, 17400), (115, 17418), (116, 17424),

Gene: Vanseggelen\_25 Start: 16195, Stop: 17409, Start Num: 4

Candidate Starts for Vanseggelen\_25:

(Start: 4 @16195 has 105 MA's), (7, 16222), (10, 16273), (24, 16405), (28, 16465), (29, 16468), (36, 16567), (46, 16663), (47, 16675), (53, 16750), (55, 16774), (62, 16849), (63, 16876), (67, 16912), (82, 17116), (83, 17131), (88, 17173), (89, 17176), (95, 17215), (106, 17329), (115, 17395), (116, 17401),

Gene: Verabelle\_21 Start: 16526, Stop: 17743, Start Num: 4

Candidate Starts for Verabelle\_21:

(Start: 4 @16526 has 105 MA's), (7, 16553), (10, 16604), (20, 16706), (24, 16736), (28, 16796), (29, 16799), (32, 16838), (46, 16994), (48, 17024), (53, 17081), (54, 17102), (62, 17180), (63, 17207), (67, 17243), (82, 17447), (83, 17462), (95, 17546), (105, 17639), (106, 17660), (115, 17729), (116, 17735),

Gene: Verse\_20 Start: 16825, Stop: 18042, Start Num: 4

Candidate Starts for Verse\_20:

(Start: 4 @16825 has 105 MA's), (7, 16852), (10, 16903), (20, 17005), (24, 17035), (28, 17095), (32, 17137), (36, 17197), (46, 17293), (48, 17323), (53, 17380), (54, 17401), (62, 17479), (67, 17542), (82, 17746), (83, 17761), (92, 17827), (95, 17845), (105, 17938), (107, 17968), (115, 18028), (116, 18034),

Gene: VieEnRose\_20 Start: 16278, Stop: 17498, Start Num: 4

Candidate Starts for VieEnRose\_20:

(Start: 4 @16278 has 105 MA's), (8, 16320), (13, 16365), (18, 16434), (22, 16482), (24, 16488), (38, 16674), (39, 16677), (46, 16746), (50, 16800), (57, 16875), (63, 16959), (67, 16995), (71, 17055), (78, 17178), (83, 17214), (85, 17238), (88, 17256), (90, 17262), (95, 17298), (100, 17340), (106, 17412), (115, 17484), (116, 17490),

Gene: Werner\_20 Start: 15831, Stop: 17042, Start Num: 4

Candidate Starts for Werner\_20:

(Start: 4 @15831 has 105 MA's), (24, 16041), (25, 16053), (26, 16056), (29, 16104), (36, 16203), (39, 16230), (46, 16299), (50, 16353), (55, 16410), (62, 16485), (63, 16512), (66, 16542), (68, 16566), (72, 16620), (76, 16698), (82, 16752), (85, 16791), (88, 16809), (94, 16842), (95, 16851), (98, 16884), (100, 16893), (105, 16944), (115, 17028), (116, 17034),

Gene: Whatever\_20 Start: 15831, Stop: 17042, Start Num: 4

Candidate Starts for Whatever\_20:

(Start: 4 @15831 has 105 MA's), (24, 16041), (25, 16053), (26, 16056), (29, 16104), (36, 16203), (39, 16230), (46, 16299), (50, 16353), (55, 16410), (62, 16485), (63, 16512), (66, 16542), (68, 16566), (72, 16620), (76, 16698), (82, 16752), (85, 16791), (88, 16809), (94, 16842), (95, 16851), (98, 16884), (100, 16893), (105, 16944), (115, 17028), (116, 17034),

Gene: Yasdnii\_20 Start: 15823, Stop: 17034, Start Num: 4

Candidate Starts for Yasdnii\_20:

(Start: 4 @15823 has 105 MA's), (7, 15850), (24, 16033), (25, 16045), (26, 16048), (36, 16195), (39, 16222), (50, 16345), (55, 16402), (62, 16477), (63, 16504), (66, 16534), (69, 16561), (72, 16612), (82, 16744), (85, 16783), (88, 16801), (93, 16831), (94, 16834), (95, 16843), (98, 16876), (100, 16885), (105, 16936), (111, 16996), (115, 17020), (116, 17026),

Gene: Yosif\_21 Start: 16799, Stop: 17983, Start Num: 4

Candidate Starts for Yosif\_21:

(Start: 4 @16799 has 105 MA's), (10, 16877), (11, 16880), (13, 16886), (22, 17003), (24, 17009), (28, 17069), (34, 17153), (35, 17168), (39, 17198), (50, 17321), (53, 17354), (63, 17480), (67, 17516), (76, 17642), (83, 17711), (85, 17735), (95, 17795), (115, 17969), (116, 17975),

Gene: Zainub\_22 Start: 16178, Stop: 17389, Start Num: 4

Candidate Starts for Zainub\_22:

(Start: 4 @16178 has 105 MA's), (11, 16259), (24, 16388), (25, 16400), (30, 16463), (39, 16577), (42, 16592), (50, 16700), (53, 16733), (55, 16757), (61, 16829), (67, 16895), (68, 16913), (69, 16916), (70, 16937), (77, 17054), (82, 17099), (83, 17114), (95, 17198), (97, 17204), (103, 17279), (105, 17291), (113, 17366), (115, 17375), (116, 17381),

Gene: Zemlya\_21 Start: 15855, Stop: 17066, Start Num: 4

Candidate Starts for Zemlya\_21:

(Start: 4 @15855 has 105 MA's), (7, 15882), (17, 16008), (19, 16014), (20, 16035), (24, 16065), (29, 16128), (36, 16227), (39, 16254), (46, 16323), (50, 16377), (52, 16389), (55, 16434), (61, 16506), (62, 16509), (67, 16572), (69, 16593), (74, 16668), (81, 16770), (82, 16776), (84, 16812), (85, 16815), (88, 16833), (95, 16875), (114, 17049), (115, 17052), (116, 17058),

Gene: phiCAM\_21 Start: 18698, Stop: 19705, Start Num: 24

Candidate Starts for phiCAM\_21:

(Start: 4 @18488 has 105 MA's), (7, 18515), (10, 18566), (24, 18698), (28, 18758), (32, 18800), (46, 18956), (48, 18986), (53, 19043), (55, 19067), (62, 19142), (63, 19169), (67, 19205), (82, 19409), (83, 19424), (89, 19469), (95, 19508), (105, 19601), (107, 19631), (115, 19691), (116, 19697),

Gene: phiHau3\_22 Start: 16517, Stop: 17728, Start Num: 2

Candidate Starts for phiHau3\_22:

(1, 16505), (Start: 2 @16517 has 1 MA's), (Start: 4 @16523 has 105 MA's), (13, 16610), (21, 16709), (25, 16745), (30, 16808), (39, 16922), (41, 16934), (45, 16988), (46, 16991), (48, 17021), (50, 17045), (55, 17102), (59, 17141), (61, 17174), (62, 17177), (65, 17225), (82, 17444), (83, 17459), (89, 17504), (94, 17534), (97, 17549), (100, 17585), (113, 17705), (115, 17714), (116, 17720),