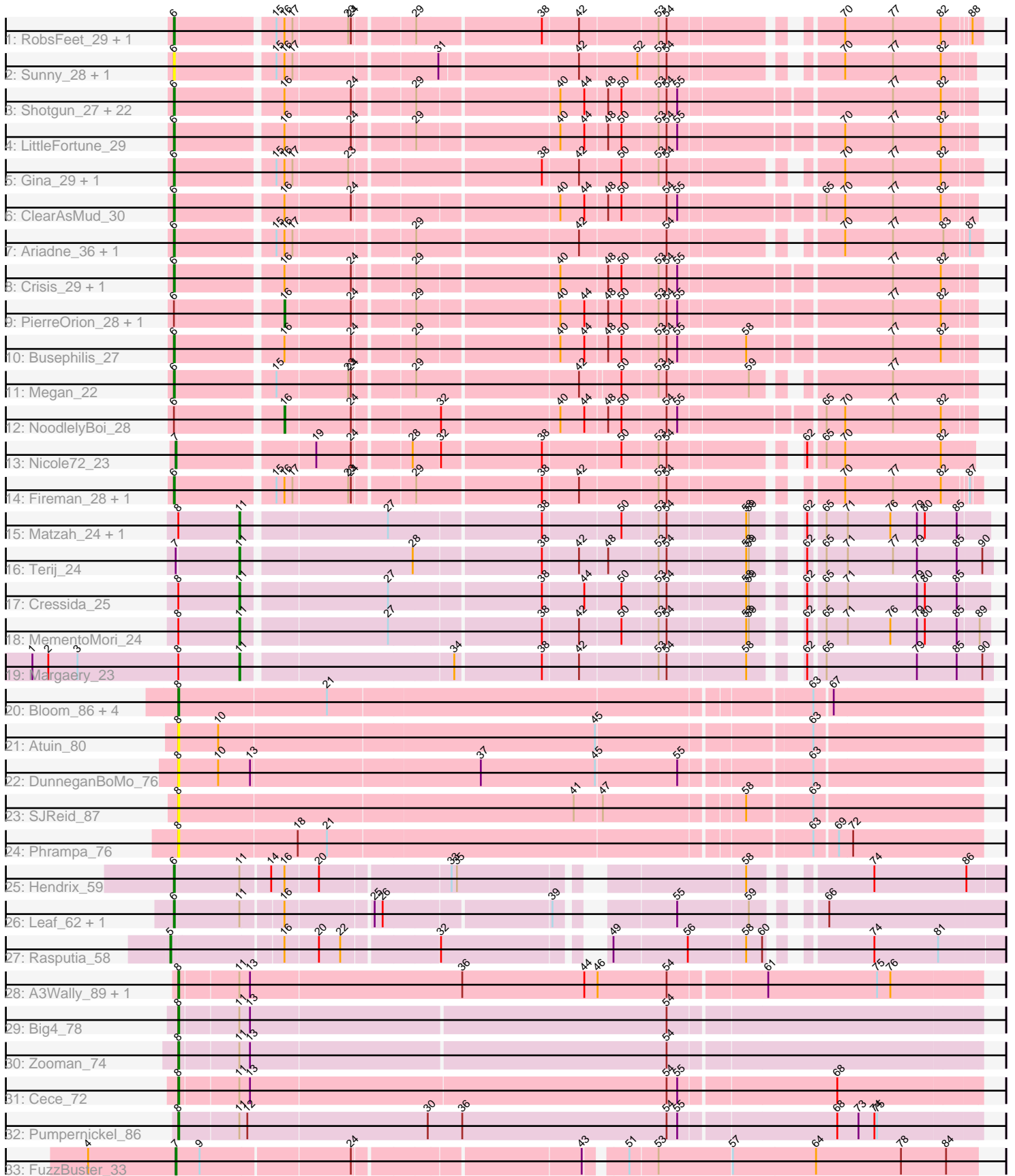


Pham 193983



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 193983 Report

This analysis was run 11/02/24 on database version 579.

Pham number 193983 has 69 members, 10 are drafts.

Phages represented in each track:

- Track 1 : RobsFeet\_29, Metamorphoo\_28
- Track 2 : Sunny\_28, Merry\_28
- Track 3 : Shotgun\_27, Paschalis\_27, Quhwah\_31, CrazyRich\_27, Savannah\_27, Jefe\_28, Phorgeous\_27, Scumberland\_29, BrazzalePHS\_27, Hermeonysus\_27, Onika\_27, Cranjjs\_29, Pulchra\_29, Kowalski\_27, Yeti\_28, Selwyn23\_29, Ramiel05\_27, Jollipop\_28, Antares\_28, Honeyfin\_29, Phrancesco\_28, PiperSansNom\_28, Piperis\_28
- Track 4 : LittleFortune\_29
- Track 5 : Gina\_29, Teamocil\_29
- Track 6 : ClearAsMud\_30
- Track 7 : Ariadne\_36, Smarties\_36
- Track 8 : Crisis\_29, KaiHaiDragon\_28
- Track 9 : PierreOrion\_28, Ganandorf\_27
- Track 10 : Busephilis\_27
- Track 11 : Megan\_22
- Track 12 : NoodlelyBoi\_28
- Track 13 : Nicole72\_23
- Track 14 : Fireman\_28, Tyrumbra\_26
- Track 15 : Matzah\_24, Cinna\_23
- Track 16 : Terij\_24
- Track 17 : Cressida\_25
- Track 18 : MementoMori\_24
- Track 19 : Margaery\_23
- Track 20 : Bloom\_86, Racecar\_83, Patbob\_83, Talia1610\_82, Mimi\_89
- Track 21 : Atuin\_80
- Track 22 : DunneganBoMo\_76
- Track 23 : SJReid\_87
- Track 24 : Phrampa\_76
- Track 25 : Hendrix\_59
- Track 26 : Leaf\_62, Dewdrop\_62
- Track 27 : Rasputia\_58
- Track 28 : A3Wally\_89, PauloDiaboli\_89
- Track 29 : Big4\_78
- Track 30 : Zooman\_74
- Track 31 : Cece\_72
- Track 32 : Pumpnickel\_86
- Track 33 : FuzzBuster\_33

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

The start number called the most often in the published annotations is 6, it was called in 40 of the 59 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Antares\_28, Ariadne\_36, BrazzalePHS\_27, Busephilis\_27, ClearAsMud\_30, Cranjjs\_29, CrazyRich\_27, Crisis\_29, Dewdrop\_62, Fireman\_28, Gina\_29, Hendrix\_59, Hermeonysus\_27, Honeyfin\_29, Jefe\_28, Jollipop\_28, KaiHaiDragon\_28, Kowalski\_27, Leaf\_62, LittleFortune\_29, Megan\_22, Merry\_28, Metamorphoo\_28, Onika\_27, Paschalis\_27, Phorgeous\_27, Phrancesco\_28, PiperSansNom\_28, Piperis\_28, Pulchra\_29, Quhwah\_31, Ramiel05\_27, RobsFeet\_29, Savannah\_27, Scumberland\_29, Selwyn23\_29, Shotgun\_27, Smarties\_36, Sunny\_28, Teamocil\_29, Tyrumbra\_26, Yeti\_28,

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

- Ganandorf\_27, NoodlelyBoi\_28, PierreOrion\_28,

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

- A3Wally\_89, Atuin\_80, Big4\_78, Bloom\_86, Cece\_72, Cinna\_23, Cressida\_25, DunneganBoMo\_76, FuzzBuster\_33, Margaery\_23, Matzah\_24, MementoMori\_24, Mimi\_89, Nicole72\_23, Patbob\_83, PauloDiaboli\_89, Phrampa\_76, Pumpernickel\_86, Racecar\_83, Rasputia\_58, SJReid\_87, Talia1610\_82, Terij\_24, Zooman\_74,

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

Start 5:

- Found in 1 of 69 ( 1.4% ) of genes in pham
- Manual Annotations of this start: 1 of 59
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rasputia\_58 (GC),

Start 6:

- Found in 45 of 69 ( 65.2% ) of genes in pham
- Manual Annotations of this start: 40 of 59
- Called 93.3% of time when present
- Phage (with cluster) where this start called: Antares\_28 (EC), Ariadne\_36 (EC), BrazzalePHS\_27 (EC), Busephilis\_27 (EC), ClearAsMud\_30 (EC), Cranjjs\_29 (EC), CrazyRich\_27 (EC), Crisis\_29 (EC), Dewdrop\_62 (GC), Fireman\_28 (EC), Gina\_29 (EC), Hendrix\_59 (GC), Hermeonysus\_27 (EC), Honeyfin\_29 (EC), Jefe\_28 (EC), Jollipop\_28 (EC), KaiHaiDragon\_28 (EC), Kowalski\_27 (EC), Leaf\_62 (GC), LittleFortune\_29 (EC), Megan\_22 (EC), Merry\_28 (EC), Metamorphoo\_28 (EC), Onika\_27 (EC), Paschalis\_27 (EC), Phorgeous\_27 (EC), Phrancesco\_28 (EC), PiperSansNom\_28 (EC), Piperis\_28 (EC), Pulchra\_29 (EC), Quhwah\_31 (EC), Ramiel05\_27 (EC), RobsFeet\_29 (EC), Savannah\_27 (EC), Scumberland\_29 (EC), Selwyn23\_29 (EC), Shotgun\_27 (EC), Smarties\_36 (EC), Sunny\_28 (EC), Teamocil\_29 (EC), Tyrumbra\_26 (EC), Yeti\_28 (EC),

Start 7:

- Found in 3 of 69 ( 4.3% ) of genes in pham
- Manual Annotations of this start: 2 of 59
- Called 66.7% of time when present
- Phage (with cluster) where this start called: FuzzBuster\_33 (singleton), Nicole72\_23 (EC),

Start 8:

- Found in 20 of 69 ( 29.0% ) of genes in pham
- Manual Annotations of this start: 8 of 59
- Called 75.0% of time when present
- Phage (with cluster) where this start called: A3Wally\_89 (GD1), Atuin\_80 (FC), Big4\_78 (GD2), Bloom\_86 (FC), Cece\_72 (GD3), DunneganBoMo\_76 (FC), Mimi\_89 (FC), Patbob\_83 (FC), PauloDiaboli\_89 (GD1), Phrampa\_76 (FC), Pumpernickel\_86 (GD4), Racecar\_83 (FC), SJReid\_87 (FC), Talia1610\_82 (FC), Zooman\_74 (GD2),

Start 11:

- Found in 15 of 69 ( 21.7% ) of genes in pham
- Manual Annotations of this start: 6 of 59
- Called 40.0% of time when present
- Phage (with cluster) where this start called: Cinna\_23 (EI), Cressida\_25 (EI), Margaery\_23 (EI), Matzah\_24 (EI), MementoMori\_24 (EI), Terij\_24 (EI),

Start 16:

- Found in 45 of 69 ( 65.2% ) of genes in pham
- Manual Annotations of this start: 2 of 59
- Called 6.7% of time when present
- Phage (with cluster) where this start called: Ganandorf\_27 (EC), NoodlelyBoi\_28 (EC), PierreOrion\_28 (EC),

### Summary by clusters:

There are 9 clusters represented in this pham: GD1, GD2, GD3, EI, singleton, EC, FC, GC, GD4,

Info for manual annotations of cluster EC:

- Start number 6 was manually annotated 37 times for cluster EC.
- Start number 7 was manually annotated 1 time for cluster EC.
- Start number 16 was manually annotated 2 times for cluster EC.

Info for manual annotations of cluster EI:

- Start number 11 was manually annotated 6 times for cluster EI.

Info for manual annotations of cluster FC:

- Start number 8 was manually annotated 2 times for cluster FC.

Info for manual annotations of cluster GC:

- Start number 5 was manually annotated 1 time for cluster GC.
- Start number 6 was manually annotated 3 times for cluster GC.

Info for manual annotations of cluster GD1:

- Start number 8 was manually annotated 2 times for cluster GD1.

Info for manual annotations of cluster GD2:

- Start number 8 was manually annotated 2 times for cluster GD2.

Info for manual annotations of cluster GD3:

- Start number 8 was manually annotated 1 time for cluster GD3.

Info for manual annotations of cluster GD4:

- Start number 8 was manually annotated 1 time for cluster GD4.

### **Gene Information:**

Gene: A3Wally\_89 Start: 46992, Stop: 47873, Start Num: 8

Candidate Starts for A3Wally\_89:

(Start: 8 @46992 has 8 MA's), (Start: 11 @47055 has 6 MA's), (13, 47067), (36, 47304), (44, 47442), (46, 47457), (54, 47535), (61, 47637), (75, 47760), (76, 47775),

Gene: Antares\_28 Start: 15892, Stop: 16722, Start Num: 6

Candidate Starts for Antares\_28:

(Start: 6 @15892 has 40 MA's), (Start: 16 @16003 has 2 MA's), (24, 16075), (29, 16135), (40, 16285), (44, 16312), (48, 16336), (50, 16351), (53, 16390), (54, 16399), (55, 16411), (77, 16633), (82, 16687),

Gene: Ariadne\_36 Start: 17634, Stop: 18449, Start Num: 6

Candidate Starts for Ariadne\_36:

(Start: 6 @17634 has 40 MA's), (15, 17736), (Start: 16 @17745 has 2 MA's), (17, 17754), (29, 17877), (42, 18051), (54, 18144), (70, 18300), (77, 18354), (83, 18411), (87, 18435),

Gene: Atuin\_80 Start: 48877, Stop: 49749, Start Num: 8

Candidate Starts for Atuin\_80:

(Start: 8 @48877 has 8 MA's), (10, 48922), (45, 49339), (63, 49564),

Gene: Big4\_78 Start: 45834, Stop: 46709, Start Num: 8

Candidate Starts for Big4\_78:

(Start: 8 @45834 has 8 MA's), (Start: 11 @45897 has 6 MA's), (13, 45909), (54, 46371),

Gene: Bloom\_86 Start: 50280, Stop: 51149, Start Num: 8

Candidate Starts for Bloom\_86:

(Start: 8 @50280 has 8 MA's), (21, 50445), (63, 50964), (67, 50982),

Gene: BrazzalePHS\_27 Start: 15687, Stop: 16517, Start Num: 6

Candidate Starts for BrazzalePHS\_27:

(Start: 6 @15687 has 40 MA's), (Start: 16 @15798 has 2 MA's), (24, 15870), (29, 15930), (40, 16080), (44, 16107), (48, 16131), (50, 16146), (53, 16185), (54, 16194), (55, 16206), (77, 16428), (82, 16482),

Gene: Busephilis\_27 Start: 15623, Stop: 16453, Start Num: 6

Candidate Starts for Busephilis\_27:

(Start: 6 @15623 has 40 MA's), (Start: 16 @15734 has 2 MA's), (24, 15806), (29, 15866), (40, 16016), (44, 16043), (48, 16067), (50, 16082), (53, 16121), (54, 16130), (55, 16142), (58, 16214), (77, 16364), (82, 16418),

Gene: Cece\_72 Start: 41904, Stop: 42782, Start Num: 8

Candidate Starts for Cece\_72:

(Start: 8 @41904 has 8 MA's), (Start: 11 @41967 has 6 MA's), (13, 41979), (54, 42444), (55, 42456), (68, 42624),

Gene: Cinna\_23 Start: 15247, Stop: 16008, Start Num: 11

Candidate Starts for Cinna\_23:

(Start: 8 @15178 has 8 MA's), (Start: 11 @15247 has 6 MA's), (27, 15400), (38, 15562), (50, 15646), (53, 15685), (54, 15694), (58, 15778), (59, 15781), (62, 15814), (65, 15829), (71, 15853), (76, 15901), (79, 15931), (80, 15940), (85, 15976),

Gene: ClearAsMud\_30 Start: 16413, Stop: 17243, Start Num: 6

Candidate Starts for ClearAsMud\_30:

(Start: 6 @16413 has 40 MA's), (Start: 16 @16524 has 2 MA's), (24, 16596), (40, 16806), (44, 16833), (48, 16857), (50, 16872), (54, 16920), (55, 16932), (65, 17079), (70, 17100), (77, 17154), (82, 17208),

Gene: Cranjjs\_29 Start: 15847, Stop: 16677, Start Num: 6

Candidate Starts for Cranjjs\_29:

(Start: 6 @15847 has 40 MA's), (Start: 16 @15958 has 2 MA's), (24, 16030), (29, 16090), (40, 16240), (44, 16267), (48, 16291), (50, 16306), (53, 16345), (54, 16354), (55, 16366), (77, 16588), (82, 16642),

Gene: CrazyRich\_27 Start: 15657, Stop: 16487, Start Num: 6

Candidate Starts for CrazyRich\_27:

(Start: 6 @15657 has 40 MA's), (Start: 16 @15768 has 2 MA's), (24, 15840), (29, 15900), (40, 16050), (44, 16077), (48, 16101), (50, 16116), (53, 16155), (54, 16164), (55, 16176), (77, 16398), (82, 16452),

Gene: Cressida\_25 Start: 15291, Stop: 16052, Start Num: 11

Candidate Starts for Cressida\_25:

(Start: 8 @15222 has 8 MA's), (Start: 11 @15291 has 6 MA's), (27, 15444), (38, 15606), (44, 15651), (50, 15690), (53, 15729), (54, 15738), (58, 15822), (59, 15825), (62, 15858), (65, 15873), (71, 15897), (79, 15975), (80, 15984), (85, 16020),

Gene: Crisis\_29 Start: 15642, Stop: 16472, Start Num: 6

Candidate Starts for Crisis\_29:

(Start: 6 @15642 has 40 MA's), (Start: 16 @15753 has 2 MA's), (24, 15825), (29, 15885), (40, 16035), (48, 16086), (50, 16101), (53, 16140), (54, 16149), (55, 16161), (77, 16383), (82, 16437),

Gene: Dewdrop\_62 Start: 32410, Stop: 33225, Start Num: 6

Candidate Starts for Dewdrop\_62:

(Start: 6 @32410 has 40 MA's), (Start: 11 @32482 has 6 MA's), (Start: 16 @32524 has 2 MA's), (25, 32614), (26, 32623), (39, 32800), (55, 32899), (59, 32977), (66, 33028),

Gene: DunneganBoMo\_76 Start: 45738, Stop: 46607, Start Num: 8

Candidate Starts for DunneganBoMo\_76:

(Start: 8 @45738 has 8 MA's), (10, 45783), (13, 45819), (37, 46071), (45, 46200), (55, 46290), (63, 46422),

Gene: Fireman\_28 Start: 15540, Stop: 16349, Start Num: 6

Candidate Starts for Fireman\_28:

(Start: 6 @15540 has 40 MA's), (15, 15642), (Start: 16 @15651 has 2 MA's), (17, 15660), (23, 15720), (24, 15723), (29, 15783), (38, 15918), (42, 15957), (53, 16041), (54, 16050), (70, 16206), (77, 16260), (82, 16314), (87, 16338),

Gene: FuzzBuster\_33 Start: 16274, Stop: 17122, Start Num: 7

Candidate Starts for FuzzBuster\_33:

(4, 16175), (Start: 7 @16274 has 2 MA's), (9, 16301), (24, 16463), (43, 16700), (51, 16736), (53, 16766), (57, 16847), (64, 16940), (78, 17036), (84, 17087),

Gene: Ganandorf\_27 Start: 15815, Stop: 16534, Start Num: 16

Candidate Starts for Ganandorf\_27:

(Start: 6 @15704 has 40 MA's), (Start: 16 @15815 has 2 MA's), (24, 15887), (29, 15947), (40, 16097), (44, 16124), (48, 16148), (50, 16163), (53, 16202), (54, 16211), (55, 16223), (77, 16445), (82, 16499),

Gene: Gina\_29 Start: 15204, Stop: 16019, Start Num: 6

Candidate Starts for Gina\_29:

(Start: 6 @15204 has 40 MA's), (15, 15306), (Start: 16 @15315 has 2 MA's), (17, 15324), (23, 15384), (38, 15582), (42, 15621), (50, 15666), (53, 15705), (54, 15714), (70, 15870), (77, 15924), (82, 15978),

Gene: Hendrix\_59 Start: 32358, Stop: 33179, Start Num: 6

Candidate Starts for Hendrix\_59:

(Start: 6 @32358 has 40 MA's), (Start: 11 @32430 has 6 MA's), (14, 32460), (Start: 16 @32475 has 2 MA's), (20, 32511), (33, 32646), (35, 32652), (58, 32931), (74, 33036), (86, 33138),

Gene: Hermeonysus\_27 Start: 15576, Stop: 16406, Start Num: 6

Candidate Starts for Hermeonysus\_27:

(Start: 6 @15576 has 40 MA's), (Start: 16 @15687 has 2 MA's), (24, 15759), (29, 15819), (40, 15969), (44, 15996), (48, 16020), (50, 16035), (53, 16074), (54, 16083), (55, 16095), (77, 16317), (82, 16371),

Gene: Honeyfin\_29 Start: 15892, Stop: 16722, Start Num: 6

Candidate Starts for Honeyfin\_29:

(Start: 6 @15892 has 40 MA's), (Start: 16 @16003 has 2 MA's), (24, 16075), (29, 16135), (40, 16285), (44, 16312), (48, 16336), (50, 16351), (53, 16390), (54, 16399), (55, 16411), (77, 16633), (82, 16687),

Gene: Jefe\_28 Start: 15629, Stop: 16459, Start Num: 6

Candidate Starts for Jefe\_28:

(Start: 6 @15629 has 40 MA's), (Start: 16 @15740 has 2 MA's), (24, 15812), (29, 15872), (40, 16022), (44, 16049), (48, 16073), (50, 16088), (53, 16127), (54, 16136), (55, 16148), (77, 16370), (82, 16424),

Gene: Jollipop\_28 Start: 15974, Stop: 16804, Start Num: 6

Candidate Starts for Jollipop\_28:

(Start: 6 @15974 has 40 MA's), (Start: 16 @16085 has 2 MA's), (24, 16157), (29, 16217), (40, 16367), (44, 16394), (48, 16418), (50, 16433), (53, 16472), (54, 16481), (55, 16493), (77, 16715), (82, 16769),

Gene: KaiHaiDragon\_28 Start: 15568, Stop: 16398, Start Num: 6

Candidate Starts for KaiHaiDragon\_28:

(Start: 6 @15568 has 40 MA's), (Start: 16 @15679 has 2 MA's), (24, 15751), (29, 15811), (40, 15961), (48, 16012), (50, 16027), (53, 16066), (54, 16075), (55, 16087), (77, 16309), (82, 16363),

Gene: Kowalski\_27 Start: 15684, Stop: 16514, Start Num: 6

Candidate Starts for Kowalski\_27:

(Start: 6 @15684 has 40 MA's), (Start: 16 @15795 has 2 MA's), (24, 15867), (29, 15927), (40, 16077), (44, 16104), (48, 16128), (50, 16143), (53, 16182), (54, 16191), (55, 16203), (77, 16425), (82, 16479),

Gene: Leaf\_62 Start: 32410, Stop: 33225, Start Num: 6

Candidate Starts for Leaf\_62:

(Start: 6 @32410 has 40 MA's), (Start: 11 @32482 has 6 MA's), (Start: 16 @32524 has 2 MA's), (25, 32614), (26, 32623), (39, 32800), (55, 32899), (59, 32977), (66, 33028),

Gene: LittleFortune\_29 Start: 15934, Stop: 16764, Start Num: 6

Candidate Starts for LittleFortune\_29:

(Start: 6 @15934 has 40 MA's), (Start: 16 @16045 has 2 MA's), (24, 16117), (29, 16177), (40, 16327), (44, 16354), (48, 16378), (50, 16393), (53, 16432), (54, 16441), (55, 16453), (70, 16621), (77, 16675), (82, 16729),

Gene: Margaery\_23 Start: 15201, Stop: 15968, Start Num: 11

Candidate Starts for Margaery\_23:

(1, 14967), (2, 14985), (3, 15018), (Start: 8 @15132 has 8 MA's), (Start: 11 @15201 has 6 MA's), (34, 15423), (38, 15516), (42, 15555), (53, 15639), (54, 15648), (58, 15732), (62, 15768), (65, 15783), (79, 15885), (85, 15930), (90, 15957),

Gene: Matzah\_24 Start: 15224, Stop: 15985, Start Num: 11

Candidate Starts for Matzah\_24:

(Start: 8 @15155 has 8 MA's), (Start: 11 @15224 has 6 MA's), (27, 15377), (38, 15539), (50, 15623), (53, 15662), (54, 15671), (58, 15755), (59, 15758), (62, 15791), (65, 15806), (71, 15830), (76, 15878), (79, 15908), (80, 15917), (85, 15953),

Gene: Megan\_22 Start: 16905, Stop: 17714, Start Num: 6

Candidate Starts for Megan\_22:

(Start: 6 @16905 has 40 MA's), (15, 17007), (23, 17085), (24, 17088), (29, 17148), (42, 17322), (50, 17364), (53, 17403), (54, 17412), (59, 17499), (77, 17622),

Gene: MementoMori\_24 Start: 14946, Stop: 15707, Start Num: 11

Candidate Starts for MementoMori\_24:

(Start: 8 @14877 has 8 MA's), (Start: 11 @14946 has 6 MA's), (27, 15099), (38, 15261), (42, 15300), (50, 15345), (53, 15384), (54, 15393), (58, 15477), (59, 15480), (62, 15513), (65, 15528), (71, 15552), (76, 15600), (79, 15630), (80, 15639), (85, 15675), (89, 15696),

Gene: Merry\_28 Start: 15926, Stop: 16729, Start Num: 6

Candidate Starts for Merry\_28:

(Start: 6 @15926 has 40 MA's), (15, 16028), (Start: 16 @16037 has 2 MA's), (17, 16046), (31, 16193), (42, 16340), (52, 16403), (53, 16424), (54, 16433), (70, 16589), (77, 16643), (82, 16697),

Gene: Metamorphoo\_28 Start: 15526, Stop: 16338, Start Num: 6

Candidate Starts for Metamorphoo\_28:

(Start: 6 @15526 has 40 MA's), (15, 15628), (Start: 16 @15637 has 2 MA's), (17, 15646), (23, 15706), (24, 15709), (29, 15769), (38, 15904), (42, 15943), (53, 16027), (54, 16036), (70, 16192), (77, 16246), (82, 16300), (88, 16327),

Gene: Mimi\_89 Start: 49627, Stop: 50496, Start Num: 8

Candidate Starts for Mimi\_89:

(Start: 8 @49627 has 8 MA's), (21, 49792), (63, 50311), (67, 50329),

Gene: Nicole72\_23 Start: 17288, Stop: 18094, Start Num: 7

Candidate Starts for Nicole72\_23:

(Start: 7 @17288 has 2 MA's), (19, 17432), (24, 17471), (28, 17528), (32, 17555), (38, 17663), (50, 17747), (53, 17786), (54, 17795), (62, 17915), (65, 17930), (70, 17951), (82, 18059),

Gene: NoodlelyBoi\_28 Start: 16131, Stop: 16853, Start Num: 16

Candidate Starts for NoodlelyBoi\_28:

(Start: 6 @16020 has 40 MA's), (Start: 16 @16131 has 2 MA's), (24, 16203), (32, 16290), (40, 16416), (44, 16443), (48, 16467), (50, 16482), (54, 16530), (55, 16542), (65, 16689), (70, 16710), (77, 16764),



(82, 16818),

Gene: Onika\_27 Start: 15658, Stop: 16488, Start Num: 6

Candidate Starts for Onika\_27:

(Start: 6 @15658 has 40 MA's), (Start: 16 @15769 has 2 MA's), (24, 15841), (29, 15901), (40, 16051), (44, 16078), (48, 16102), (50, 16117), (53, 16156), (54, 16165), (55, 16177), (77, 16399), (82, 16453),

Gene: Paschalis\_27 Start: 15672, Stop: 16502, Start Num: 6

Candidate Starts for Paschalis\_27:

(Start: 6 @15672 has 40 MA's), (Start: 16 @15783 has 2 MA's), (24, 15855), (29, 15915), (40, 16065), (44, 16092), (48, 16116), (50, 16131), (53, 16170), (54, 16179), (55, 16191), (77, 16413), (82, 16467),

Gene: Patbob\_83 Start: 50499, Stop: 51368, Start Num: 8

Candidate Starts for Patbob\_83:

(Start: 8 @50499 has 8 MA's), (21, 50664), (63, 51183), (67, 51201),

Gene: PauloDiaboli\_89 Start: 46349, Stop: 47230, Start Num: 8

Candidate Starts for PauloDiaboli\_89:

(Start: 8 @46349 has 8 MA's), (Start: 11 @46412 has 6 MA's), (13, 46424), (36, 46661), (44, 46799), (46, 46814), (54, 46892), (61, 46994), (75, 47117), (76, 47132),

Gene: Phorgeous\_27 Start: 15525, Stop: 16355, Start Num: 6

Candidate Starts for Phorgeous\_27:

(Start: 6 @15525 has 40 MA's), (Start: 16 @15636 has 2 MA's), (24, 15708), (29, 15768), (40, 15918), (44, 15945), (48, 15969), (50, 15984), (53, 16023), (54, 16032), (55, 16044), (77, 16266), (82, 16320),

Gene: Phrampa\_76 Start: 47201, Stop: 48070, Start Num: 8

Candidate Starts for Phrampa\_76:

(Start: 8 @47201 has 8 MA's), (18, 47333), (21, 47366), (63, 47885), (69, 47909), (72, 47924),

Gene: Phrancesco\_28 Start: 15803, Stop: 16633, Start Num: 6

Candidate Starts for Phrancesco\_28:

(Start: 6 @15803 has 40 MA's), (Start: 16 @15914 has 2 MA's), (24, 15986), (29, 16046), (40, 16196), (44, 16223), (48, 16247), (50, 16262), (53, 16301), (54, 16310), (55, 16322), (77, 16544), (82, 16598),

Gene: PierreOrion\_28 Start: 15938, Stop: 16657, Start Num: 16

Candidate Starts for PierreOrion\_28:

(Start: 6 @15827 has 40 MA's), (Start: 16 @15938 has 2 MA's), (24, 16010), (29, 16070), (40, 16220), (44, 16247), (48, 16271), (50, 16286), (53, 16325), (54, 16334), (55, 16346), (77, 16568), (82, 16622),

Gene: PiperSansNom\_28 Start: 15979, Stop: 16809, Start Num: 6

Candidate Starts for PiperSansNom\_28:

(Start: 6 @15979 has 40 MA's), (Start: 16 @16090 has 2 MA's), (24, 16162), (29, 16222), (40, 16372), (44, 16399), (48, 16423), (50, 16438), (53, 16477), (54, 16486), (55, 16498), (77, 16720), (82, 16774),

Gene: Piperis\_28 Start: 15649, Stop: 16479, Start Num: 6

Candidate Starts for Piperis\_28:

(Start: 6 @15649 has 40 MA's), (Start: 16 @15760 has 2 MA's), (24, 15832), (29, 15892), (40, 16042), (44, 16069), (48, 16093), (50, 16108), (53, 16147), (54, 16156), (55, 16168), (77, 16390), (82, 16444),

Gene: Pulchra\_29 Start: 16049, Stop: 16879, Start Num: 6

Candidate Starts for Pulchra\_29:

(Start: 6 @16049 has 40 MA's), (Start: 16 @16160 has 2 MA's), (24, 16232), (29, 16292), (40, 16442), (44, 16469), (48, 16493), (50, 16508), (53, 16547), (54, 16556), (55, 16568), (77, 16790), (82, 16844),

Gene: Pumpernickel\_86 Start: 47559, Stop: 48443, Start Num: 8  
Candidate Starts for Pumpernickel\_86:

(Start: 8 @47559 has 8 MA's), (Start: 11 @47625 has 6 MA's), (12, 47634), (30, 47835), (36, 47874), (54, 48105), (55, 48117), (68, 48285), (73, 48309), (74, 48327), (75, 48330),

Gene: Quhwah\_31 Start: 16275, Stop: 17105, Start Num: 6  
Candidate Starts for Quhwah\_31:

(Start: 6 @16275 has 40 MA's), (Start: 16 @16386 has 2 MA's), (24, 16458), (29, 16518), (40, 16668), (44, 16695), (48, 16719), (50, 16734), (53, 16773), (54, 16782), (55, 16794), (77, 17016), (82, 17070),

Gene: Racecar\_83 Start: 50280, Stop: 51149, Start Num: 8  
Candidate Starts for Racecar\_83:

(Start: 8 @50280 has 8 MA's), (21, 50445), (63, 50964), (67, 50982),

Gene: Ramiel05\_27 Start: 15684, Stop: 16514, Start Num: 6  
Candidate Starts for Ramiel05\_27:

(Start: 6 @15684 has 40 MA's), (Start: 16 @15795 has 2 MA's), (24, 15867), (29, 15927), (40, 16077), (44, 16104), (48, 16128), (50, 16143), (53, 16182), (54, 16191), (55, 16203), (77, 16425), (82, 16479),

Gene: Rasputia\_58 Start: 32048, Stop: 32869, Start Num: 5  
Candidate Starts for Rasputia\_58:

(Start: 5 @32048 has 1 MA's), (Start: 16 @32165 has 2 MA's), (20, 32201), (22, 32225), (32, 32324), (49, 32477), (56, 32558), (58, 32621), (60, 32639), (74, 32726), (81, 32798),

Gene: RobsFeet\_29 Start: 15807, Stop: 16619, Start Num: 6  
Candidate Starts for RobsFeet\_29:

(Start: 6 @15807 has 40 MA's), (15, 15909), (Start: 16 @15918 has 2 MA's), (17, 15927), (23, 15987), (24, 15990), (29, 16050), (38, 16185), (42, 16224), (53, 16308), (54, 16317), (70, 16473), (77, 16527), (82, 16581), (88, 16608),

Gene: SJReid\_87 Start: 51543, Stop: 52412, Start Num: 8  
Candidate Starts for SJReid\_87:

(Start: 8 @51543 has 8 MA's), (41, 51981), (47, 52011), (58, 52158), (63, 52227),

Gene: Savannah\_27 Start: 15711, Stop: 16541, Start Num: 6  
Candidate Starts for Savannah\_27:

(Start: 6 @15711 has 40 MA's), (Start: 16 @15822 has 2 MA's), (24, 15894), (29, 15954), (40, 16104), (44, 16131), (48, 16155), (50, 16170), (53, 16209), (54, 16218), (55, 16230), (77, 16452), (82, 16506),

Gene: Scumberland\_29 Start: 15899, Stop: 16729, Start Num: 6  
Candidate Starts for Scumberland\_29:

(Start: 6 @15899 has 40 MA's), (Start: 16 @16010 has 2 MA's), (24, 16082), (29, 16142), (40, 16292), (44, 16319), (48, 16343), (50, 16358), (53, 16397), (54, 16406), (55, 16418), (77, 16640), (82, 16694),

Gene: Selwyn23\_29 Start: 15877, Stop: 16707, Start Num: 6  
Candidate Starts for Selwyn23\_29:

(Start: 6 @15877 has 40 MA's), (Start: 16 @15988 has 2 MA's), (24, 16060), (29, 16120), (40, 16270), (44, 16297), (48, 16321), (50, 16336), (53, 16375), (54, 16384), (55, 16396), (77, 16618), (82, 16672),

Gene: Shotgun\_27 Start: 15509, Stop: 16339, Start Num: 6

Candidate Starts for Shotgun\_27:

(Start: 6 @15509 has 40 MA's), (Start: 16 @15620 has 2 MA's), (24, 15692), (29, 15752), (40, 15902), (44, 15929), (48, 15953), (50, 15968), (53, 16007), (54, 16016), (55, 16028), (77, 16250), (82, 16304),

Gene: Smarties\_36 Start: 17634, Stop: 18449, Start Num: 6

Candidate Starts for Smarties\_36:

(Start: 6 @17634 has 40 MA's), (15, 17736), (Start: 16 @17745 has 2 MA's), (17, 17754), (29, 17877), (42, 18051), (54, 18144), (70, 18300), (77, 18354), (83, 18411), (87, 18435),

Gene: Sunny\_28 Start: 15926, Stop: 16729, Start Num: 6

Candidate Starts for Sunny\_28:

(Start: 6 @15926 has 40 MA's), (15, 16028), (Start: 16 @16037 has 2 MA's), (17, 16046), (31, 16193), (42, 16340), (52, 16403), (53, 16424), (54, 16433), (70, 16589), (77, 16643), (82, 16697),

Gene: Talia1610\_82 Start: 49645, Stop: 50514, Start Num: 8

Candidate Starts for Talia1610\_82:

(Start: 8 @49645 has 8 MA's), (21, 49810), (63, 50329), (67, 50347),

Gene: Teamocil\_29 Start: 15303, Stop: 16118, Start Num: 6

Candidate Starts for Teamocil\_29:

(Start: 6 @15303 has 40 MA's), (15, 15405), (Start: 16 @15414 has 2 MA's), (17, 15423), (23, 15483), (38, 15681), (42, 15720), (50, 15765), (53, 15804), (54, 15813), (70, 15969), (77, 16023), (82, 16077),

Gene: Terij\_24 Start: 15272, Stop: 16039, Start Num: 11

Candidate Starts for Terij\_24:

(Start: 7 @15203 has 2 MA's), (Start: 11 @15272 has 6 MA's), (28, 15452), (38, 15587), (42, 15626), (48, 15656), (53, 15710), (54, 15719), (58, 15803), (59, 15806), (62, 15839), (65, 15854), (71, 15878), (77, 15929), (79, 15956), (85, 16001), (90, 16028),

Gene: Tyrumbra\_26 Start: 14883, Stop: 15692, Start Num: 6

Candidate Starts for Tyrumbra\_26:

(Start: 6 @14883 has 40 MA's), (15, 14985), (Start: 16 @14994 has 2 MA's), (17, 15003), (23, 15063), (24, 15066), (29, 15126), (38, 15261), (42, 15300), (53, 15384), (54, 15393), (70, 15549), (77, 15603), (82, 15657), (87, 15681),

Gene: Yeti\_28 Start: 15679, Stop: 16509, Start Num: 6

Candidate Starts for Yeti\_28:

(Start: 6 @15679 has 40 MA's), (Start: 16 @15790 has 2 MA's), (24, 15862), (29, 15922), (40, 16072), (44, 16099), (48, 16123), (50, 16138), (53, 16177), (54, 16186), (55, 16198), (77, 16420), (82, 16474),

Gene: Zooman\_74 Start: 44530, Stop: 45405, Start Num: 8

Candidate Starts for Zooman\_74:

(Start: 8 @44530 has 8 MA's), (Start: 11 @44593 has 6 MA's), (13, 44605), (54, 45067),