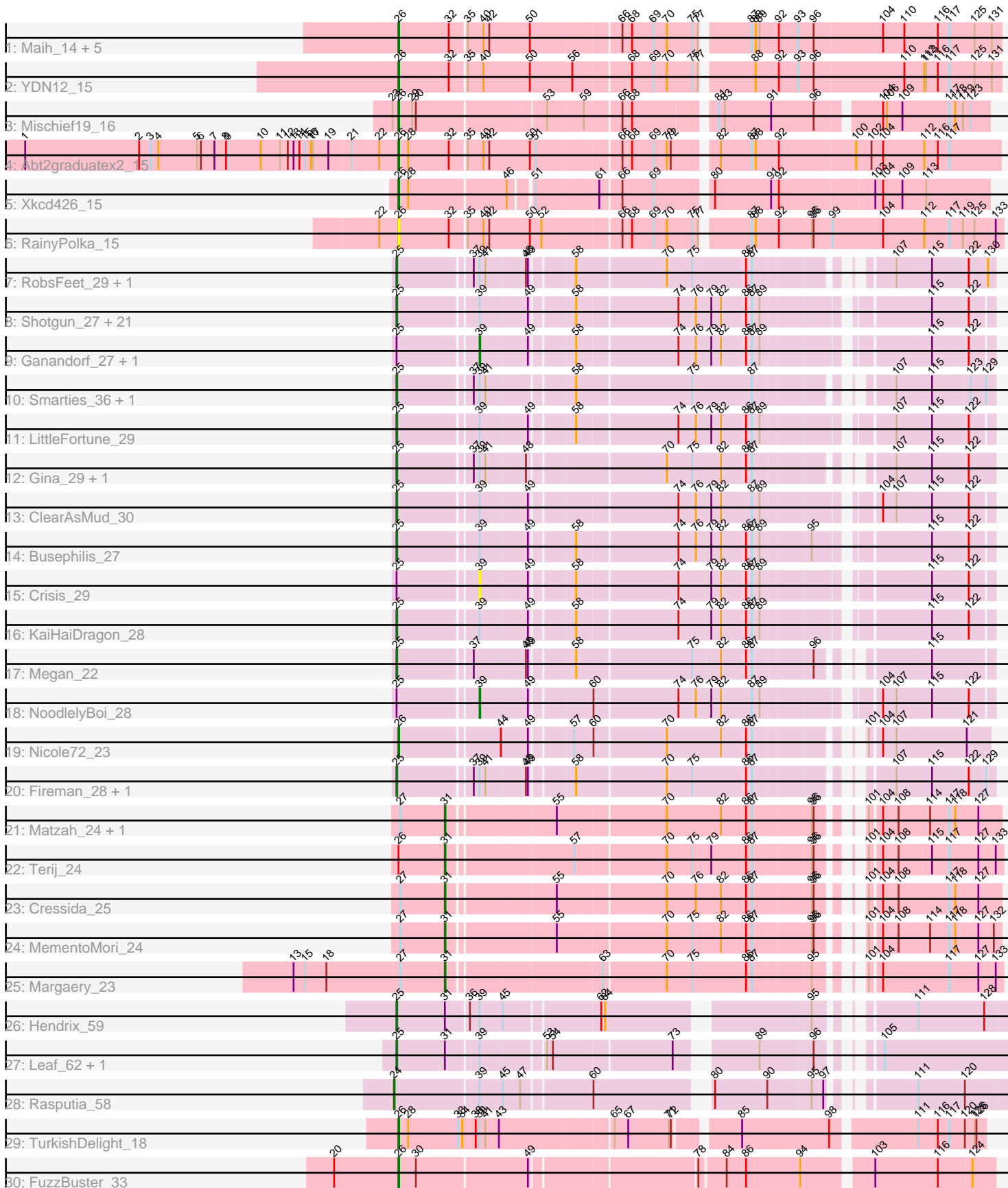


Pham 157862



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 157862 Report

This analysis was run 04/13/24 on database version 558.

Pham number 157862 has 63 members, 5 are drafts.

Phages represented in each track:

- Track 1 : Maih_14, BabyGotBac_14, Asis_14, TP1604_14, Salete_14, BayC_14
- Track 2 : YDN12_15
- Track 3 : Mischief19_16
- Track 4 : Abt2graduatex2_15
- Track 5 : Xkcd426_15
- Track 6 : RainyPolka_15
- Track 7 : RobsFeet_29, Metamorphoo_28
- Track 8 : Shotgun_27, Paschalis_27, Quhwah_31, CrazyRich_27, Savannah_27, Phorgeous_27, Scumberland_29, BrazzalePHS_27, Onika_27, Cranjjs_29, Hermeonysus_27, Pulchra_29, Selwyn23_29, Ramiel05_27, Jollipop_28, Antares_28, Honeyfin_29, Jefe_28, Kowalski_27, Phrancesco_28, PiperSansNom_28, Piperis_28
- Track 9 : Ganandorf_27, PierreOrion_28
- Track 10 : Smarties_36, Ariadne_36
- Track 11 : LittleFortune_29
- Track 12 : Gina_29, Teamocil_29
- Track 13 : ClearAsMud_30
- Track 14 : Busephilis_27
- Track 15 : Crisis_29
- Track 16 : KaiHaiDragon_28
- Track 17 : Megan_22
- Track 18 : NoodlelyBoi_28
- Track 19 : Nicole72_23
- Track 20 : Fireman_28, Tyrumbra_26
- Track 21 : Matzah_24, Cinna_23
- Track 22 : Terij_24
- Track 23 : Cressida_25
- Track 24 : MementoMori_24
- Track 25 : Margaery_23
- Track 26 : Hendrix_59
- Track 27 : Leaf_62, Dewdrop_62
- Track 28 : Rasputia_58
- Track 29 : TurkishDelight_18
- Track 30 : 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 25, it was called in 36 of the 58 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, 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, 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, Teamocil_29, Tyumbra_26,

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

- Crisis_29, Ganandorf_27, NoodlelyBoi_28, PierreOrion_28,

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

- Abt2graduatex2_15, Asis_14, BabyGotBac_14, BayC_14, Cinna_23, Cressida_25, FuzzBuster_33, Maih_14, Margaery_23, Matzah_24, MementoMori_24, Mischief19_16, Nicole72_23, RainyPolka_15, Rasputia_58, Salete_14, TP1604_14, Terij_24, TurkishDelight_18, Xkcd426_15, YDN12_15,

Summary by start number:

Start 24:

- Found in 1 of 63 (1.6%) of genes in pham
- Manual Annotations of this start: 1 of 58
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Rasputia_58 (GC),

Start 25:

- Found in 42 of 63 (66.7%) of genes in pham
- Manual Annotations of this start: 36 of 58
- Called 90.5% 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), 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), 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), Teamocil_29 (EC), Tyumbra_26 (EC),

Start 26:

- Found in 15 of 63 (23.8%) of genes in pham
- Manual Annotations of this start: 13 of 58
- Called 93.3% of time when present

- Phage (with cluster) where this start called: Abt2graduatex2_15 (BG), Asis_14 (BG), BabyGotBac_14 (BG), BayC_14 (BG), FuzzBuster_33 (singleton), Maih_14 (BG), Mischief19_16 (BG), Nicole72_23 (EC), RainyPolka_15 (BG), Salete_14 (BG), TP1604_14 (BG), TurkishDelight_18 (singleton), Xkcd426_15 (BG), YDN12_15 (BG),

Start 31:

- Found in 9 of 63 (14.3%) of genes in pham
- Manual Annotations of this start: 6 of 58
- Called 66.7% 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 39:

- Found in 43 of 63 (68.3%) of genes in pham
- Manual Annotations of this start: 2 of 58
- Called 9.3% of time when present
- Phage (with cluster) where this start called: Crisis_29 (EC), Ganandorf_27 (EC), NoodlelyBoi_28 (EC), PierreOrion_28 (EC),

Summary by clusters:

There are 5 clusters represented in this pham: EI, singleton, BG, GC, EC,

Info for manual annotations of cluster BG:

- Start number 26 was manually annotated 10 times for cluster BG.

Info for manual annotations of cluster EC:

- Start number 25 was manually annotated 33 times for cluster EC.
- Start number 26 was manually annotated 1 time for cluster EC.
- Start number 39 was manually annotated 2 times for cluster EC.

Info for manual annotations of cluster EI:

- Start number 31 was manually annotated 6 times for cluster EI.

Info for manual annotations of cluster GC:

- Start number 24 was manually annotated 1 time for cluster GC.
- Start number 25 was manually annotated 3 times for cluster GC.

Gene Information:

Gene: Abt2graduatex2_15 Start: 16020, Stop: 16913, Start Num: 26

Candidate Starts for Abt2graduatex2_15:

(1, 15447), (2, 15624), (3, 15642), (4, 15654), (5, 15714), (6, 15720), (7, 15741), (8, 15759), (9, 15762), (10, 15813), (11, 15843), (12, 15855), (13, 15864), (14, 15873), (15, 15882), (16, 15891), (17, 15894), (19, 15918), (21, 15951), (22, 15993), (Start: 26 @16020 has 13 MA's), (28, 16035), (32, 16098), (35, 16122), (40, 16146), (42, 16155), (50, 16218), (51, 16227), (66, 16350), (68, 16365), (69, 16398), (70, 16419), (72, 16425), (82, 16485), (87, 16533), (88, 16539), (92, 16575), (100, 16692), (102, 16716), (104, 16734), (112, 16797), (116, 16818), (117, 16836),

Gene: Antares_28 Start: 15892, Stop: 16722, Start Num: 25

Candidate Starts for Antares_28:

(Start: 25 @15892 has 36 MA's), (Start: 39 @16003 has 2 MA's), (49, 16075), (58, 16135), (74, 16285), (76, 16312), (79, 16336), (82, 16351), (86, 16390), (87, 16399), (89, 16411), (115, 16633), (122, 16687),

Gene: Ariadne_36 Start: 17634, Stop: 18449, Start Num: 25

Candidate Starts for Ariadne_36:

(Start: 25 @17634 has 36 MA's), (37, 17736), (Start: 39 @17745 has 2 MA's), (41, 17754), (58, 17877), (75, 18051), (87, 18144), (107, 18300), (115, 18354), (123, 18411), (129, 18435),

Gene: Asis_14 Start: 15544, Stop: 16440, Start Num: 26

Candidate Starts for Asis_14:

(Start: 26 @15544 has 13 MA's), (32, 15622), (35, 15646), (40, 15670), (42, 15679), (50, 15742), (66, 15874), (68, 15889), (69, 15922), (70, 15943), (75, 15982), (77, 15991), (87, 16057), (88, 16063), (89, 16069), (92, 16099), (93, 16129), (96, 16153), (104, 16258), (110, 16291), (116, 16342), (117, 16360), (125, 16399), (131, 16426),

Gene: BabyGotBac_14 Start: 15544, Stop: 16440, Start Num: 26

Candidate Starts for BabyGotBac_14:

(Start: 26 @15544 has 13 MA's), (32, 15622), (35, 15646), (40, 15670), (42, 15679), (50, 15742), (66, 15874), (68, 15889), (69, 15922), (70, 15943), (75, 15982), (77, 15991), (87, 16057), (88, 16063), (89, 16069), (92, 16099), (93, 16129), (96, 16153), (104, 16258), (110, 16291), (116, 16342), (117, 16360), (125, 16399), (131, 16426),

Gene: BayC_14 Start: 15544, Stop: 16440, Start Num: 26

Candidate Starts for BayC_14:

(Start: 26 @15544 has 13 MA's), (32, 15622), (35, 15646), (40, 15670), (42, 15679), (50, 15742), (66, 15874), (68, 15889), (69, 15922), (70, 15943), (75, 15982), (77, 15991), (87, 16057), (88, 16063), (89, 16069), (92, 16099), (93, 16129), (96, 16153), (104, 16258), (110, 16291), (116, 16342), (117, 16360), (125, 16399), (131, 16426),

Gene: BrazzalePHS_27 Start: 15687, Stop: 16517, Start Num: 25

Candidate Starts for BrazzalePHS_27:

(Start: 25 @15687 has 36 MA's), (Start: 39 @15798 has 2 MA's), (49, 15870), (58, 15930), (74, 16080), (76, 16107), (79, 16131), (82, 16146), (86, 16185), (87, 16194), (89, 16206), (115, 16428), (122, 16482),

Gene: Busephilis_27 Start: 15623, Stop: 16453, Start Num: 25

Candidate Starts for Busephilis_27:

(Start: 25 @15623 has 36 MA's), (Start: 39 @15734 has 2 MA's), (49, 15806), (58, 15866), (74, 16016), (76, 16043), (79, 16067), (82, 16082), (86, 16121), (87, 16130), (89, 16142), (95, 16214), (115, 16364), (122, 16418),

Gene: Cinna_23 Start: 15247, Stop: 16008, Start Num: 31

Candidate Starts for Cinna_23:

(27, 15178), (Start: 31 @15247 has 6 MA's), (55, 15400), (70, 15562), (82, 15646), (86, 15685), (87, 15694), (95, 15778), (96, 15781), (101, 15814), (104, 15829), (108, 15853), (114, 15901), (117, 15931), (118, 15940), (127, 15976),

Gene: ClearAsMud_30 Start: 16413, Stop: 17243, Start Num: 25

Candidate Starts for ClearAsMud_30:

(Start: 25 @16413 has 36 MA's), (Start: 39 @16524 has 2 MA's), (49, 16596), (74, 16806), (76, 16833), (79, 16857), (82, 16872), (87, 16920), (89, 16932), (104, 17079), (107, 17100), (115, 17154), (122, 17208),

Gene: Cranjjs_29 Start: 15847, Stop: 16677, Start Num: 25

Candidate Starts for Cranjjs_29:

(Start: 25 @15847 has 36 MA's), (Start: 39 @15958 has 2 MA's), (49, 16030), (58, 16090), (74, 16240), (76, 16267), (79, 16291), (82, 16306), (86, 16345), (87, 16354), (89, 16366), (115, 16588), (122, 16642),

Gene: CrazyRich_27 Start: 15657, Stop: 16487, Start Num: 25

Candidate Starts for CrazyRich_27:

(Start: 25 @15657 has 36 MA's), (Start: 39 @15768 has 2 MA's), (49, 15840), (58, 15900), (74, 16050), (76, 16077), (79, 16101), (82, 16116), (86, 16155), (87, 16164), (89, 16176), (115, 16398), (122, 16452),

Gene: Cressida_25 Start: 15291, Stop: 16052, Start Num: 31

Candidate Starts for Cressida_25:

(27, 15222), (Start: 31 @15291 has 6 MA's), (55, 15444), (70, 15606), (76, 15651), (82, 15690), (86, 15729), (87, 15738), (95, 15822), (96, 15825), (101, 15858), (104, 15873), (108, 15897), (117, 15975), (118, 15984), (127, 16020),

Gene: Crisis_29 Start: 15753, Stop: 16472, Start Num: 39

Candidate Starts for Crisis_29:

(Start: 25 @15642 has 36 MA's), (Start: 39 @15753 has 2 MA's), (49, 15825), (58, 15885), (74, 16035), (79, 16086), (82, 16101), (86, 16140), (87, 16149), (89, 16161), (115, 16383), (122, 16437),

Gene: Dewdrop_62 Start: 32410, Stop: 33225, Start Num: 25

Candidate Starts for Dewdrop_62:

(Start: 25 @32410 has 36 MA's), (Start: 31 @32482 has 6 MA's), (Start: 39 @32524 has 2 MA's), (53, 32614), (54, 32623), (73, 32800), (89, 32899), (96, 32977), (105, 33028),

Gene: Fireman_28 Start: 15540, Stop: 16349, Start Num: 25

Candidate Starts for Fireman_28:

(Start: 25 @15540 has 36 MA's), (37, 15642), (Start: 39 @15651 has 2 MA's), (41, 15660), (48, 15720), (49, 15723), (58, 15783), (70, 15918), (75, 15957), (86, 16041), (87, 16050), (107, 16206), (115, 16260), (122, 16314), (129, 16338),

Gene: FuzzBuster_33 Start: 16274, Stop: 17122, Start Num: 26

Candidate Starts for FuzzBuster_33:

(20, 16175), (Start: 26 @16274 has 13 MA's), (30, 16301), (49, 16463), (78, 16700), (84, 16736), (86, 16766), (94, 16847), (103, 16940), (116, 17036), (124, 17087),

Gene: Ganandorf_27 Start: 15815, Stop: 16534, Start Num: 39

Candidate Starts for Ganandorf_27:

(Start: 25 @15704 has 36 MA's), (Start: 39 @15815 has 2 MA's), (49, 15887), (58, 15947), (74, 16097), (76, 16124), (79, 16148), (82, 16163), (86, 16202), (87, 16211), (89, 16223), (115, 16445), (122, 16499),

Gene: Gina_29 Start: 15204, Stop: 16019, Start Num: 25

Candidate Starts for Gina_29:

(Start: 25 @15204 has 36 MA's), (37, 15306), (Start: 39 @15315 has 2 MA's), (41, 15324), (48, 15384), (70, 15582), (75, 15621), (82, 15666), (86, 15705), (87, 15714), (107, 15870), (115, 15924), (122, 15978),

Gene: Hendrix_59 Start: 32358, Stop: 33179, Start Num: 25

Candidate Starts for Hendrix_59:

(Start: 25 @32358 has 36 MA's), (Start: 31 @32430 has 6 MA's), (36, 32460), (Start: 39 @32475 has 2 MA's), (45, 32511), (62, 32646), (64, 32652), (95, 32931), (111, 33036), (128, 33138),

Gene: Hermeonysus_27 Start: 15576, Stop: 16406, Start Num: 25

Candidate Starts for Hermeonysus_27:

(Start: 25 @15576 has 36 MA's), (Start: 39 @15687 has 2 MA's), (49, 15759), (58, 15819), (74, 15969), (76, 15996), (79, 16020), (82, 16035), (86, 16074), (87, 16083), (89, 16095), (115, 16317), (122, 16371),

Gene: Honeyfin_29 Start: 15892, Stop: 16722, Start Num: 25

Candidate Starts for Honeyfin_29:

(Start: 25 @15892 has 36 MA's), (Start: 39 @16003 has 2 MA's), (49, 16075), (58, 16135), (74, 16285), (76, 16312), (79, 16336), (82, 16351), (86, 16390), (87, 16399), (89, 16411), (115, 16633), (122, 16687),

Gene: Jefe_28 Start: 15629, Stop: 16459, Start Num: 25

Candidate Starts for Jefe_28:

(Start: 25 @15629 has 36 MA's), (Start: 39 @15740 has 2 MA's), (49, 15812), (58, 15872), (74, 16022), (76, 16049), (79, 16073), (82, 16088), (86, 16127), (87, 16136), (89, 16148), (115, 16370), (122, 16424),

Gene: Jollipop_28 Start: 15974, Stop: 16804, Start Num: 25

Candidate Starts for Jollipop_28:

(Start: 25 @15974 has 36 MA's), (Start: 39 @16085 has 2 MA's), (49, 16157), (58, 16217), (74, 16367), (76, 16394), (79, 16418), (82, 16433), (86, 16472), (87, 16481), (89, 16493), (115, 16715), (122, 16769),

Gene: KaiHaiDragon_28 Start: 15568, Stop: 16398, Start Num: 25

Candidate Starts for KaiHaiDragon_28:

(Start: 25 @15568 has 36 MA's), (Start: 39 @15679 has 2 MA's), (49, 15751), (58, 15811), (74, 15961), (79, 16012), (82, 16027), (86, 16066), (87, 16075), (89, 16087), (115, 16309), (122, 16363),

Gene: Kowalski_27 Start: 15684, Stop: 16514, Start Num: 25

Candidate Starts for Kowalski_27:

(Start: 25 @15684 has 36 MA's), (Start: 39 @15795 has 2 MA's), (49, 15867), (58, 15927), (74, 16077), (76, 16104), (79, 16128), (82, 16143), (86, 16182), (87, 16191), (89, 16203), (115, 16425), (122, 16479),

Gene: Leaf_62 Start: 32410, Stop: 33225, Start Num: 25

Candidate Starts for Leaf_62:

(Start: 25 @32410 has 36 MA's), (Start: 31 @32482 has 6 MA's), (Start: 39 @32524 has 2 MA's), (53, 32614), (54, 32623), (73, 32800), (89, 32899), (96, 32977), (105, 33028),

Gene: LittleFortune_29 Start: 15934, Stop: 16764, Start Num: 25

Candidate Starts for LittleFortune_29:

(Start: 25 @15934 has 36 MA's), (Start: 39 @16045 has 2 MA's), (49, 16117), (58, 16177), (74, 16327), (76, 16354), (79, 16378), (82, 16393), (86, 16432), (87, 16441), (89, 16453), (107, 16621), (115, 16675), (122, 16729),

Gene: Maih_14 Start: 15543, Stop: 16439, Start Num: 26

Candidate Starts for Maih_14:

(Start: 26 @15543 has 13 MA's), (32, 15621), (35, 15645), (40, 15669), (42, 15678), (50, 15741), (66, 15873), (68, 15888), (69, 15921), (70, 15942), (75, 15981), (77, 15990), (87, 16056), (88, 16062), (89, 16068), (92, 16098), (93, 16128), (96, 16152), (104, 16257), (110, 16290), (116, 16341), (117, 16359), (125, 16398), (131, 16425),

Gene: Margaery_23 Start: 15201, Stop: 15968, Start Num: 31

Candidate Starts for Margaery_23:

(13, 14967), (15, 14985), (18, 15018), (27, 15132), (Start: 31 @15201 has 6 MA's), (63, 15423), (70, 15516), (75, 15555), (86, 15639), (87, 15648), (95, 15732), (101, 15768), (104, 15783), (117, 15885), (127, 15930), (133, 15957),

Gene: Matzah_24 Start: 15224, Stop: 15985, Start Num: 31

Candidate Starts for Matzah_24:

(27, 15155), (Start: 31 @15224 has 6 MA's), (55, 15377), (70, 15539), (82, 15623), (86, 15662), (87, 15671), (95, 15755), (96, 15758), (101, 15791), (104, 15806), (108, 15830), (114, 15878), (117, 15908), (118, 15917), (127, 15953),

Gene: Megan_22 Start: 16905, Stop: 17714, Start Num: 25

Candidate Starts for Megan_22:

(Start: 25 @16905 has 36 MA's), (37, 17007), (48, 17085), (49, 17088), (58, 17148), (75, 17322), (82, 17364), (86, 17403), (87, 17412), (96, 17499), (115, 17622),

Gene: MementoMori_24 Start: 14946, Stop: 15707, Start Num: 31

Candidate Starts for MementoMori_24:

(27, 14877), (Start: 31 @14946 has 6 MA's), (55, 15099), (70, 15261), (75, 15300), (82, 15345), (86, 15384), (87, 15393), (95, 15477), (96, 15480), (101, 15513), (104, 15528), (108, 15552), (114, 15600), (117, 15630), (118, 15639), (127, 15675), (132, 15696),

Gene: Metamorphoo_28 Start: 15526, Stop: 16338, Start Num: 25

Candidate Starts for Metamorphoo_28:

(Start: 25 @15526 has 36 MA's), (37, 15628), (Start: 39 @15637 has 2 MA's), (41, 15646), (48, 15706), (49, 15709), (58, 15769), (70, 15904), (75, 15943), (86, 16027), (87, 16036), (107, 16192), (115, 16246), (122, 16300), (130, 16327),

Gene: Mischief19_16 Start: 18095, Stop: 18940, Start Num: 26

Candidate Starts for Mischief19_16:

(23, 18086), (Start: 26 @18095 has 13 MA's), (29, 18116), (30, 18122), (53, 18308), (59, 18362), (66, 18413), (68, 18428), (81, 18542), (83, 18551), (91, 18623), (96, 18689), (104, 18776), (106, 18782), (109, 18806), (117, 18878), (118, 18887), (119, 18899), (123, 18911),

Gene: Nicole72_23 Start: 17288, Stop: 18094, Start Num: 26

Candidate Starts for Nicole72_23:

(Start: 26 @17288 has 13 MA's), (44, 17432), (49, 17471), (57, 17528), (60, 17555), (70, 17663), (82, 17747), (86, 17786), (87, 17795), (101, 17915), (104, 17930), (107, 17951), (121, 18059),

Gene: NoodlelyBoi_28 Start: 16131, Stop: 16853, Start Num: 39

Candidate Starts for NoodlelyBoi_28:

(Start: 25 @16020 has 36 MA's), (Start: 39 @16131 has 2 MA's), (49, 16203), (60, 16290), (74, 16416), (76, 16443), (79, 16467), (82, 16482), (87, 16530), (89, 16542), (104, 16689), (107, 16710), (115, 16764), (122, 16818),

Gene: Onika_27 Start: 15658, Stop: 16488, Start Num: 25

Candidate Starts for Onika_27:

(Start: 25 @15658 has 36 MA's), (Start: 39 @15769 has 2 MA's), (49, 15841), (58, 15901), (74, 16051), (76, 16078), (79, 16102), (82, 16117), (86, 16156), (87, 16165), (89, 16177), (115, 16399), (122, 16453),

Gene: Paschalis_27 Start: 15672, Stop: 16502, Start Num: 25

Candidate Starts for Paschalis_27:

(Start: 25 @15672 has 36 MA's), (Start: 39 @15783 has 2 MA's), (49, 15855), (58, 15915), (74, 16065), (76, 16092), (79, 16116), (82, 16131), (86, 16170), (87, 16179), (89, 16191), (115, 16413), (122, 16467),

Gene: Phorgeous_27 Start: 15525, Stop: 16355, Start Num: 25

Candidate Starts for Phorgeous_27:

(Start: 25 @15525 has 36 MA's), (Start: 39 @15636 has 2 MA's), (49, 15708), (58, 15768), (74, 15918), (76, 15945), (79, 15969), (82, 15984), (86, 16023), (87, 16032), (89, 16044), (115, 16266), (122, 16320),

Gene: Phrancesco_28 Start: 15803, Stop: 16633, Start Num: 25

Candidate Starts for Phrancesco_28:

(Start: 25 @15803 has 36 MA's), (Start: 39 @15914 has 2 MA's), (49, 15986), (58, 16046), (74, 16196), (76, 16223), (79, 16247), (82, 16262), (86, 16301), (87, 16310), (89, 16322), (115, 16544), (122, 16598),

Gene: PierreOrion_28 Start: 15938, Stop: 16657, Start Num: 39

Candidate Starts for PierreOrion_28:

(Start: 25 @15827 has 36 MA's), (Start: 39 @15938 has 2 MA's), (49, 16010), (58, 16070), (74, 16220), (76, 16247), (79, 16271), (82, 16286), (86, 16325), (87, 16334), (89, 16346), (115, 16568), (122, 16622),

Gene: PiperSansNom_28 Start: 15979, Stop: 16809, Start Num: 25

Candidate Starts for PiperSansNom_28:

(Start: 25 @15979 has 36 MA's), (Start: 39 @16090 has 2 MA's), (49, 16162), (58, 16222), (74, 16372), (76, 16399), (79, 16423), (82, 16438), (86, 16477), (87, 16486), (89, 16498), (115, 16720), (122, 16774),

Gene: Piperis_28 Start: 15649, Stop: 16479, Start Num: 25

Candidate Starts for Piperis_28:

(Start: 25 @15649 has 36 MA's), (Start: 39 @15760 has 2 MA's), (49, 15832), (58, 15892), (74, 16042), (76, 16069), (79, 16093), (82, 16108), (86, 16147), (87, 16156), (89, 16168), (115, 16390), (122, 16444),

Gene: Pulchra_29 Start: 16049, Stop: 16879, Start Num: 25

Candidate Starts for Pulchra_29:

(Start: 25 @16049 has 36 MA's), (Start: 39 @16160 has 2 MA's), (49, 16232), (58, 16292), (74, 16442), (76, 16469), (79, 16493), (82, 16508), (86, 16547), (87, 16556), (89, 16568), (115, 16790), (122, 16844),

Gene: Quhwah_31 Start: 16275, Stop: 17105, Start Num: 25

Candidate Starts for Quhwah_31:

(Start: 25 @16275 has 36 MA's), (Start: 39 @16386 has 2 MA's), (49, 16458), (58, 16518), (74, 16668), (76, 16695), (79, 16719), (82, 16734), (86, 16773), (87, 16782), (89, 16794), (115, 17016), (122, 17070),

Gene: RainyPolka_15 Start: 15874, Stop: 16773, Start Num: 26

Candidate Starts for RainyPolka_15:

(22, 15847), (Start: 26 @15874 has 13 MA's), (32, 15952), (35, 15976), (40, 16000), (42, 16009), (50, 16072), (52, 16090), (66, 16204), (68, 16219), (69, 16252), (70, 16273), (75, 16312), (77, 16321), (87, 16387), (88, 16393), (92, 16429), (95, 16480), (96, 16483), (99, 16510), (104, 16588), (112, 16651), (117, 16690), (119, 16711), (125, 16729), (133, 16762),

Gene: Ramiel05_27 Start: 15684, Stop: 16514, Start Num: 25

Candidate Starts for Ramiel05_27:

(Start: 25 @15684 has 36 MA's), (Start: 39 @15795 has 2 MA's), (49, 15867), (58, 15927), (74, 16077), (76, 16104), (79, 16128), (82, 16143), (86, 16182), (87, 16191), (89, 16203), (115, 16425), (122, 16479),

Gene: Rasputia_58 Start: 32048, Stop: 32869, Start Num: 24

Candidate Starts for Rasputia_58:

(Start: 24 @32048 has 1 MA's), (Start: 39 @32165 has 2 MA's), (45, 32201), (47, 32225), (60, 32324), (80, 32477), (90, 32558), (95, 32621), (97, 32639), (111, 32726), (120, 32798),

Gene: RobsFeet_29 Start: 15807, Stop: 16619, Start Num: 25

Candidate Starts for RobsFeet_29:

(Start: 25 @15807 has 36 MA's), (37, 15909), (Start: 39 @15918 has 2 MA's), (41, 15927), (48, 15987), (49, 15990), (58, 16050), (70, 16185), (75, 16224), (86, 16308), (87, 16317), (107, 16473), (115, 16527), (122, 16581), (130, 16608),

Gene: Salete_14 Start: 15544, Stop: 16440, Start Num: 26

Candidate Starts for Salete_14:

(Start: 26 @15544 has 13 MA's), (32, 15622), (35, 15646), (40, 15670), (42, 15679), (50, 15742), (66, 15874), (68, 15889), (69, 15922), (70, 15943), (75, 15982), (77, 15991), (87, 16057), (88, 16063), (89, 16069), (92, 16099), (93, 16129), (96, 16153), (104, 16258), (110, 16291), (116, 16342), (117, 16360), (125, 16399), (131, 16426),

Gene: Savannah_27 Start: 15711, Stop: 16541, Start Num: 25

Candidate Starts for Savannah_27:

(Start: 25 @15711 has 36 MA's), (Start: 39 @15822 has 2 MA's), (49, 15894), (58, 15954), (74, 16104), (76, 16131), (79, 16155), (82, 16170), (86, 16209), (87, 16218), (89, 16230), (115, 16452), (122, 16506),

Gene: Scumberland_29 Start: 15899, Stop: 16729, Start Num: 25

Candidate Starts for Scumberland_29:

(Start: 25 @15899 has 36 MA's), (Start: 39 @16010 has 2 MA's), (49, 16082), (58, 16142), (74, 16292), (76, 16319), (79, 16343), (82, 16358), (86, 16397), (87, 16406), (89, 16418), (115, 16640), (122, 16694),

Gene: Selwyn23_29 Start: 15877, Stop: 16707, Start Num: 25

Candidate Starts for Selwyn23_29:

(Start: 25 @15877 has 36 MA's), (Start: 39 @15988 has 2 MA's), (49, 16060), (58, 16120), (74, 16270), (76, 16297), (79, 16321), (82, 16336), (86, 16375), (87, 16384), (89, 16396), (115, 16618), (122, 16672),

Gene: Shotgun_27 Start: 15509, Stop: 16339, Start Num: 25

Candidate Starts for Shotgun_27:

(Start: 25 @15509 has 36 MA's), (Start: 39 @15620 has 2 MA's), (49, 15692), (58, 15752), (74, 15902), (76, 15929), (79, 15953), (82, 15968), (86, 16007), (87, 16016), (89, 16028), (115, 16250), (122, 16304),

Gene: Smarties_36 Start: 17634, Stop: 18449, Start Num: 25

Candidate Starts for Smarties_36:

(Start: 25 @17634 has 36 MA's), (37, 17736), (Start: 39 @17745 has 2 MA's), (41, 17754), (58, 17877), (75, 18051), (87, 18144), (107, 18300), (115, 18354), (123, 18411), (129, 18435),

Gene: TP1604_14 Start: 15544, Stop: 16440, Start Num: 26

Candidate Starts for TP1604_14:

(Start: 26 @15544 has 13 MA's), (32, 15622), (35, 15646), (40, 15670), (42, 15679), (50, 15742), (66, 15874), (68, 15889), (69, 15922), (70, 15943), (75, 15982), (77, 15991), (87, 16057), (88, 16063), (89, 16069), (92, 16099), (93, 16129), (96, 16153), (104, 16258), (110, 16291), (116, 16342), (117, 16360), (125, 16399), (131, 16426),

Gene: Teamocil_29 Start: 15303, Stop: 16118, Start Num: 25

Candidate Starts for Teamocil_29:

(Start: 25 @15303 has 36 MA's), (37, 15405), (Start: 39 @15414 has 2 MA's), (41, 15423), (48, 15483), (70, 15681), (75, 15720), (82, 15765), (86, 15804), (87, 15813), (107, 15969), (115, 16023), (122, 16077),

Gene: Terij_24 Start: 15272, Stop: 16039, Start Num: 31

Candidate Starts for Terij_24:

(Start: 26 @15203 has 13 MA's), (Start: 31 @15272 has 6 MA's), (57, 15452), (70, 15587), (75, 15626), (79, 15656), (86, 15710), (87, 15719), (95, 15803), (96, 15806), (101, 15839), (104, 15854), (108, 15878), (115, 15929), (117, 15956), (127, 16001), (133, 16028),

Gene: TurkishDelight_18 Start: 14791, Stop: 15639, Start Num: 26

Candidate Starts for TurkishDelight_18:

(Start: 26 @14791 has 13 MA's), (28, 14803), (33, 14881), (34, 14887), (38, 14908), (Start: 39 @14914 has 2 MA's), (41, 14923), (43, 14944), (65, 15112), (67, 15133), (71, 15196), (72, 15199), (85, 15286), (98, 15421), (111, 15538), (116, 15568), (117, 15586), (120, 15607), (125, 15622), (126, 15625),

Gene: Tyrumbra_26 Start: 14883, Stop: 15692, Start Num: 25

Candidate Starts for Tyrumbra_26:

(Start: 25 @14883 has 36 MA's), (37, 14985), (Start: 39 @14994 has 2 MA's), (41, 15003), (48, 15063), (49, 15066), (58, 15126), (70, 15261), (75, 15300), (86, 15384), (87, 15393), (107, 15549), (115, 15603), (122, 15657), (129, 15681),

Gene: Xkcd426_15 Start: 16526, Stop: 17386, Start Num: 26

Candidate Starts for Xkcd426_15:

(Start: 26 @16526 has 13 MA's), (28, 16541), (46, 16688), (51, 16718), (61, 16811), (66, 16841), (69, 16889), (80, 16967), (91, 17054), (92, 17066), (103, 17210), (104, 17222), (109, 17252), (113, 17288),

Gene: YDN12_15 Start: 15481, Stop: 16377, Start Num: 26

Candidate Starts for YDN12_15:

(Start: 26 @15481 has 13 MA's), (32, 15559), (35, 15583), (40, 15607), (50, 15679), (56, 15742), (68, 15826), (69, 15859), (70, 15880), (75, 15919), (77, 15928), (88, 16000), (92, 16036), (93, 16066), (96, 16090), (110, 16228), (112, 16258), (113, 16261), (116, 16279), (117, 16297), (125, 16336), (131, 16363),