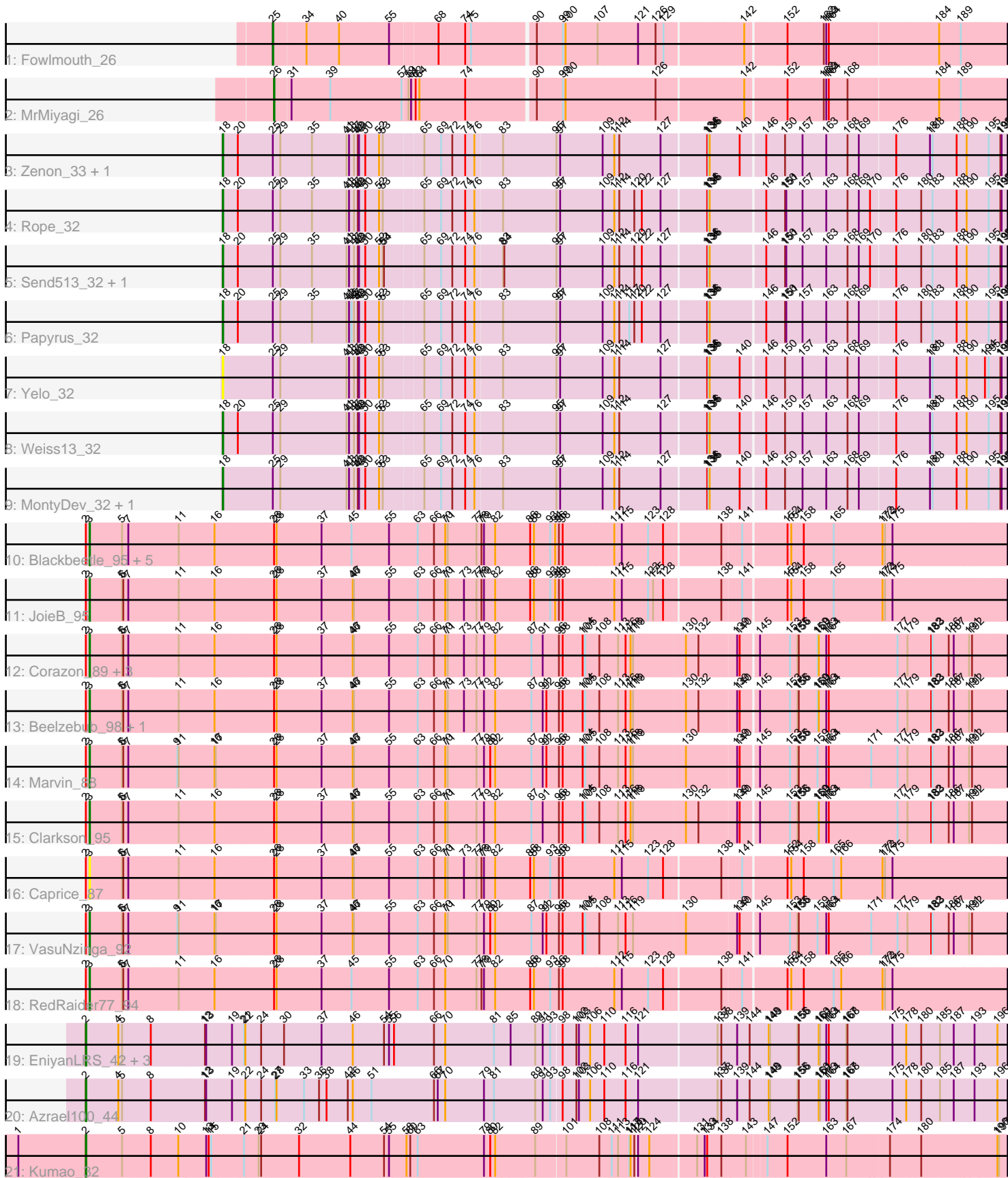


Pham 158038



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 158038 Report

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

Pham number 158038 has 36 members, 4 are drafts.

Phages represented in each track:

- Track 1 : Fowlmouth_26
- Track 2 : MrMiyagi_26
- Track 3 : Zenon_33, Nilo_33
- Track 4 : Rope_32
- Track 5 : Send513_32, Candle_32
- Track 6 : Papyrus_32
- Track 7 : Yelo_32
- Track 8 : Weiss13_32
- Track 9 : MontyDev_32, Riparian_32
- Track 10 : Blackbeetle_95, Tesla_90, Gattaca_93, Poise_95, Raela_96, MosMoris_90
- Track 11 : JoieB_95
- Track 12 : Corazon_89, Huphlepuuff_96, LittleLaf_92, Lilbit_92
- Track 13 : Beelzebub_98, Pringar_90
- Track 14 : Marvin_88
- Track 15 : Clarkson_95
- Track 16 : Caprice_87
- Track 17 : VasuNzinga_92
- Track 18 : RedRaider77_94
- Track 19 : EniyanLRS_42, Wildcat_45, Cosmo_45, MaryV_45
- Track 20 : Azrael100_44
- Track 21 : Kumao_32

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

The start number called the most often in the published annotations is 3, it was called in 16 of the 32 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Beelzebub_98, Blackbeetle_95, Caprice_87, Clarkson_95, Corazon_89, Gattaca_93, Huphlepuuff_96, JoieB_95, Lilbit_92, LittleLaf_92, Marvin_88, MosMoris_90, Poise_95, Pringar_90, Raela_96, RedRaider77_94, Tesla_90, VasuNzinga_92,

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

-

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

- Azrael100_44, Candle_32, Cosmo_45, EniyanLRS_42, Fowlmouth_26, Kumao_32, MaryV_45, MontyDev_32, MrMiyagi_26, Nilo_33, Papyrus_32, Riparian_32, Rope_32, Send513_32, Weiss13_32, Wildcat_45, Yelo_32, Zenon_33,

Summary by start number:

Start 2:

- Found in 24 of 36 (66.7%) of genes in pham
- Manual Annotations of this start: 6 of 32
- Called 25.0% of time when present
- Phage (with cluster) where this start called: Azrael100_44 (V), Cosmo_45 (V), EniyanLRS_42 (V), Kumao_32 (singleton), MaryV_45 (V), Wildcat_45 (V),

Start 3:

- Found in 18 of 36 (50.0%) of genes in pham
- Manual Annotations of this start: 16 of 32
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beelzebub_98 (S), Blackbeetle_95 (S), Caprice_87 (S), Clarkson_95 (S), Corazon_89 (S), Gattaca_93 (S), Huphlepuuff_96 (S), JoieB_95 (S), Lilbit_92 (S), LittleLaf_92 (S), Marvin_88 (S), MosMoris_90 (S), Poise_95 (S), Pringar_90 (S), Raela_96 (S), RedRaider77_94 (S), Tesla_90 (S), VasuNzinga_92 (S),

Start 18:

- Found in 10 of 36 (27.8%) of genes in pham
- Manual Annotations of this start: 8 of 32
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Candle_32 (R), MontyDev_32 (R), Nilo_33 (R), Papyrus_32 (R), Riparian_32 (R), Rope_32 (R), Send513_32 (R), Weiss13_32 (R), Yelo_32 (R), Zenon_33 (R),

Start 25:

- Found in 11 of 36 (30.6%) of genes in pham
- Manual Annotations of this start: 1 of 32
- Called 9.1% of time when present
- Phage (with cluster) where this start called: Fowlmouth_26 (AC),

Start 26:

- Found in 19 of 36 (52.8%) of genes in pham
- Manual Annotations of this start: 1 of 32
- Called 5.3% of time when present
- Phage (with cluster) where this start called: MrMiyagi_26 (AC),

Summary by clusters:

There are 5 clusters represented in this pham: S, R, singleton, AC, V,

Info for manual annotations of cluster AC:

- Start number 25 was manually annotated 1 time for cluster AC.

- Start number 26 was manually annotated 1 time for cluster AC.

Info for manual annotations of cluster R:

- Start number 18 was manually annotated 8 times for cluster R.

Info for manual annotations of cluster S:

- Start number 3 was manually annotated 16 times for cluster S.

Info for manual annotations of cluster V:

- Start number 2 was manually annotated 5 times for cluster V.

Gene Information:

Gene: Azrael100_44 Start: 32883, Stop: 35012, Start Num: 2

Candidate Starts for Azrael100_44:

(Start: 2 @32883 has 6 MA's), (4, 32961), (5, 32970), (8, 33036), (12, 33165), (13, 33168), (19, 33225), (22, 33255), (24, 33291), (27, 33324), (28, 33327), (33, 33393), (36, 33429), (38, 33447), (42, 33498), (46, 33510), (51, 33555), (66, 33699), (67, 33708), (70, 33726), (79, 33819), (81, 33843), (89, 33933), (91, 33951), (93, 33969), (98, 33993), (102, 34026), (103, 34032), (106, 34059), (110, 34092), (116, 34143), (121, 34167), (137, 34344), (138, 34353), (139, 34389), (144, 34419), (148, 34464), (149, 34467), (155, 34530), (156, 34533), (160, 34581), (161, 34584), (163, 34599), (164, 34605), (167, 34647), (168, 34650), (175, 34755), (178, 34788), (180, 34818), (185, 34863), (187, 34893), (193, 34938), (196, 34992),

Gene: Beelzebub_98 Start: 53499, Stop: 55637, Start Num: 3

Candidate Starts for Beelzebub_98:

(Start: 2 @53490 has 6 MA's), (Start: 3 @53499 has 16 MA's), (5, 53574), (6, 53577), (7, 53589), (11, 53706), (16, 53790), (Start: 26 @53928 has 1 MA's), (28, 53934), (37, 54042), (46, 54117), (47, 54120), (55, 54204), (63, 54270), (66, 54309), (70, 54336), (71, 54342), (73, 54381), (77, 54411), (79, 54429), (82, 54456), (87, 54543), (91, 54570), (92, 54579), (96, 54609), (98, 54618), (104, 54666), (105, 54672), (108, 54705), (113, 54750), (116, 54768), (118, 54780), (119, 54786), (130, 54903), (132, 54933), (139, 55020), (140, 55026), (145, 55065), (153, 55134), (155, 55152), (156, 55155), (159, 55200), (160, 55203), (163, 55221), (164, 55227), (177, 55389), (179, 55413), (182, 55467), (183, 55470), (186, 55506), (187, 55518), (191, 55551), (192, 55557),

Gene: Blackbeetle_95 Start: 52997, Stop: 55138, Start Num: 3

Candidate Starts for Blackbeetle_95:

(Start: 2 @52988 has 6 MA's), (Start: 3 @52997 has 16 MA's), (5, 53072), (7, 53087), (11, 53204), (16, 53288), (Start: 26 @53426 has 1 MA's), (28, 53432), (37, 53540), (45, 53612), (55, 53702), (63, 53768), (66, 53807), (70, 53834), (71, 53840), (77, 53909), (78, 53921), (79, 53927), (82, 53954), (86, 54035), (88, 54044), (93, 54083), (94, 54095), (96, 54104), (98, 54113), (112, 54236), (115, 54254), (123, 54317), (128, 54353), (138, 54479), (141, 54524), (152, 54620), (154, 54629), (158, 54659), (165, 54731), (172, 54848), (173, 54854), (175, 54872),

Gene: Candle_32 Start: 30083, Stop: 31864, Start Num: 18

Candidate Starts for Candle_32:

(Start: 18 @30083 has 8 MA's), (20, 30119), (Start: 25 @30197 has 1 MA's), (29, 30215), (35, 30290), (41, 30371), (43, 30377), (47, 30389), (48, 30398), (49, 30401), (50, 30416), (52, 30446), (53, 30455), (54, 30458), (65, 30542), (69, 30578), (72, 30605), (74, 30635), (76, 30653), (83, 30713), (84, 30716), (95, 30836), (97, 30845), (109, 30941), (112, 30968), (114, 30980), (120, 31016), (122, 31034), (127, 31079), (134, 31178), (135, 31181), (136, 31184), (146, 31310), (150, 31352), (151, 31355), (157,

31394), (163, 31445), (168, 31496), (169, 31520), (170, 31547), (176, 31604), (180, 31664), (183, 31691), (188, 31748), (190, 31772), (195, 31823), (198, 31850), (199, 31853),

Gene: Caprice_87 Start: 52935, Stop: 55076, Start Num: 3

Candidate Starts for Caprice_87:

(Start: 2 @52926 has 6 MA's), (Start: 3 @52935 has 16 MA's), (5, 53010), (6, 53013), (7, 53025), (11, 53142), (16, 53226), (Start: 26 @53364 has 1 MA's), (28, 53370), (37, 53478), (46, 53553), (47, 53556), (55, 53640), (63, 53706), (66, 53745), (70, 53772), (71, 53778), (73, 53817), (77, 53847), (78, 53859), (79, 53865), (82, 53892), (86, 53973), (88, 53982), (93, 54021), (96, 54042), (98, 54051), (112, 54174), (115, 54192), (123, 54255), (128, 54291), (138, 54417), (141, 54462), (152, 54558), (154, 54567), (158, 54597), (165, 54669), (166, 54687), (172, 54786), (173, 54792), (175, 54810),

Gene: Clarkson_95 Start: 53179, Stop: 55317, Start Num: 3

Candidate Starts for Clarkson_95:

(Start: 2 @53170 has 6 MA's), (Start: 3 @53179 has 16 MA's), (5, 53254), (6, 53257), (7, 53269), (11, 53386), (16, 53470), (Start: 26 @53608 has 1 MA's), (28, 53614), (37, 53722), (46, 53797), (47, 53800), (55, 53884), (63, 53950), (66, 53989), (70, 54016), (71, 54022), (77, 54091), (79, 54109), (82, 54136), (87, 54223), (91, 54250), (96, 54289), (98, 54298), (104, 54346), (105, 54352), (108, 54385), (113, 54430), (116, 54448), (118, 54460), (119, 54466), (130, 54583), (132, 54613), (139, 54700), (140, 54706), (145, 54745), (153, 54814), (155, 54832), (156, 54835), (159, 54880), (160, 54883), (163, 54901), (164, 54907), (177, 55069), (179, 55093), (182, 55147), (183, 55150), (186, 55186), (187, 55198), (191, 55231), (192, 55237),

Gene: Corazon_89 Start: 53373, Stop: 55511, Start Num: 3

Candidate Starts for Corazon_89:

(Start: 2 @53364 has 6 MA's), (Start: 3 @53373 has 16 MA's), (5, 53448), (6, 53451), (7, 53463), (11, 53580), (16, 53664), (Start: 26 @53802 has 1 MA's), (28, 53808), (37, 53916), (46, 53991), (47, 53994), (55, 54078), (63, 54144), (66, 54183), (70, 54210), (71, 54216), (73, 54255), (77, 54285), (79, 54303), (82, 54330), (87, 54417), (91, 54444), (96, 54483), (98, 54492), (104, 54540), (105, 54546), (108, 54579), (113, 54624), (116, 54642), (118, 54654), (119, 54660), (130, 54777), (132, 54807), (139, 54894), (140, 54900), (145, 54939), (153, 55008), (155, 55026), (156, 55029), (159, 55074), (160, 55077), (163, 55095), (164, 55101), (177, 55263), (179, 55287), (182, 55341), (183, 55344), (186, 55380), (187, 55392), (191, 55425), (192, 55431),

Gene: Cosmo_45 Start: 32890, Stop: 35013, Start Num: 2

Candidate Starts for Cosmo_45:

(Start: 2 @32890 has 6 MA's), (4, 32968), (5, 32977), (8, 33043), (12, 33172), (13, 33175), (19, 33232), (21, 33259), (22, 33262), (24, 33298), (30, 33352), (37, 33442), (46, 33517), (54, 33592), (55, 33604), (56, 33613), (66, 33706), (70, 33733), (81, 33850), (85, 33886), (89, 33940), (91, 33958), (93, 33976), (98, 34000), (102, 34033), (103, 34039), (106, 34066), (110, 34099), (116, 34150), (121, 34174), (137, 34351), (138, 34360), (139, 34396), (144, 34426), (148, 34471), (149, 34474), (155, 34534), (156, 34537), (160, 34585), (161, 34588), (163, 34603), (164, 34609), (167, 34651), (168, 34654), (175, 34756), (178, 34789), (180, 34819), (185, 34864), (187, 34894), (193, 34939), (196, 34993),

Gene: EniyanLRS_42 Start: 32588, Stop: 34711, Start Num: 2

Candidate Starts for EniyanLRS_42:

(Start: 2 @32588 has 6 MA's), (4, 32666), (5, 32675), (8, 32741), (12, 32870), (13, 32873), (19, 32930), (21, 32957), (22, 32960), (24, 32996), (30, 33050), (37, 33140), (46, 33215), (54, 33290), (55, 33302), (56, 33311), (66, 33404), (70, 33431), (81, 33548), (85, 33584), (89, 33638), (91, 33656), (93, 33674), (98, 33698), (102, 33731), (103, 33737), (106, 33764), (110, 33797), (116, 33848), (121, 33872), (137, 34049), (138, 34058), (139, 34094), (144, 34124), (148, 34169), (149, 34172), (155, 34232), (156, 34235), (160, 34283), (161, 34286), (163, 34301), (164, 34307), (167, 34349), (168,

34352), (175, 34454), (178, 34487), (180, 34517), (185, 34562), (187, 34592), (193, 34637), (196, 34691),

Gene: Fowlmouth_26 Start: 25255, Stop: 26895, Start Num: 25

Candidate Starts for Fowlmouth_26:

(Start: 25 @25255 has 1 MA's), (34, 25330), (40, 25405), (55, 25519), (68, 25624), (74, 25687), (75, 25699), (90, 25828), (99, 25888), (100, 25894), (107, 25969), (121, 26065), (126, 26104), (129, 26122), (142, 26299), (152, 26383), (162, 26467), (163, 26473), (164, 26479), (184, 26734), (189, 26785),

Gene: Gattaca_93 Start: 53409, Stop: 55550, Start Num: 3

Candidate Starts for Gattaca_93:

(Start: 2 @53400 has 6 MA's), (Start: 3 @53409 has 16 MA's), (5, 53484), (7, 53499), (11, 53616), (16, 53700), (Start: 26 @53838 has 1 MA's), (28, 53844), (37, 53952), (45, 54024), (55, 54114), (63, 54180), (66, 54219), (70, 54246), (71, 54252), (77, 54321), (78, 54333), (79, 54339), (82, 54366), (86, 54447), (88, 54456), (93, 54495), (94, 54507), (96, 54516), (98, 54525), (112, 54648), (115, 54666), (123, 54729), (128, 54765), (138, 54891), (141, 54936), (152, 55032), (154, 55041), (158, 55071), (165, 55143), (172, 55260), (173, 55266), (175, 55284),

Gene: Huphlepuuff_96 Start: 52984, Stop: 55122, Start Num: 3

Candidate Starts for Huphlepuuff_96:

(Start: 2 @52975 has 6 MA's), (Start: 3 @52984 has 16 MA's), (5, 53059), (6, 53062), (7, 53074), (11, 53191), (16, 53275), (Start: 26 @53413 has 1 MA's), (28, 53419), (37, 53527), (46, 53602), (47, 53605), (55, 53689), (63, 53755), (66, 53794), (70, 53821), (71, 53827), (73, 53866), (77, 53896), (79, 53914), (82, 53941), (87, 54028), (91, 54055), (96, 54094), (98, 54103), (104, 54151), (105, 54157), (108, 54190), (113, 54235), (116, 54253), (118, 54265), (119, 54271), (130, 54388), (132, 54418), (139, 54505), (140, 54511), (145, 54550), (153, 54619), (155, 54637), (156, 54640), (159, 54685), (160, 54688), (163, 54706), (164, 54712), (177, 54874), (179, 54898), (182, 54952), (183, 54955), (186, 54991), (187, 55003), (191, 55036), (192, 55042),

Gene: JoieB_95 Start: 53584, Stop: 55725, Start Num: 3

Candidate Starts for JoieB_95:

(Start: 2 @53575 has 6 MA's), (Start: 3 @53584 has 16 MA's), (5, 53659), (6, 53662), (7, 53674), (11, 53791), (16, 53875), (Start: 26 @54013 has 1 MA's), (28, 54019), (37, 54127), (46, 54202), (47, 54205), (55, 54289), (63, 54355), (66, 54394), (70, 54421), (71, 54427), (73, 54466), (77, 54496), (78, 54508), (79, 54514), (82, 54541), (86, 54622), (88, 54631), (93, 54670), (94, 54682), (96, 54691), (98, 54700), (112, 54823), (115, 54841), (123, 54904), (125, 54916), (128, 54940), (138, 55066), (141, 55111), (152, 55207), (154, 55216), (158, 55246), (165, 55318), (172, 55435), (173, 55441), (175, 55459),

Gene: Kumao_32 Start: 28241, Stop: 30346, Start Num: 2

Candidate Starts for Kumao_32:

(1, 28079), (Start: 2 @28241 has 6 MA's), (5, 28325), (8, 28391), (10, 28457), (13, 28523), (14, 28529), (15, 28535), (21, 28607), (23, 28640), (24, 28646), (32, 28736), (44, 28859), (54, 28940), (55, 28952), (58, 28991), (60, 29000), (63, 29018), (79, 29177), (80, 29192), (82, 29204), (89, 29294), (101, 29363), (108, 29441), (111, 29471), (113, 29486), (117, 29513), (118, 29516), (120, 29525), (121, 29528), (124, 29555), (131, 29657), (133, 29675), (134, 29681), (138, 29714), (143, 29768), (147, 29810), (152, 29852), (163, 29945), (167, 29990), (174, 30083), (180, 30152), (196, 30326), (197, 30329),

Gene: Lilbit_92 Start: 53544, Stop: 55682, Start Num: 3

Candidate Starts for Lilbit_92:

(Start: 2 @53535 has 6 MA's), (Start: 3 @53544 has 16 MA's), (5, 53619), (6, 53622), (7, 53634), (11, 53751), (16, 53835), (Start: 26 @53973 has 1 MA's), (28, 53979), (37, 54087), (46, 54162), (47, 54165), (55, 54249), (63, 54315), (66, 54354), (70, 54381), (71, 54387), (73, 54426), (77, 54456), (79, 54474), (82, 54501), (87, 54588), (91, 54615), (96, 54654), (98, 54663), (104, 54711), (105, 54717), (108, 54750), (113, 54795), (116, 54813), (118, 54825), (119, 54831), (130, 54948), (132, 54978), (139, 55065), (140, 55071), (145, 55110), (153, 55179), (155, 55197), (156, 55200), (159, 55245), (160, 55248), (163, 55266), (164, 55272), (177, 55434), (179, 55458), (182, 55512), (183, 55515), (186, 55551), (187, 55563), (191, 55596), (192, 55602),

Gene: LittleLaf_92 Start: 53273, Stop: 55411, Start Num: 3

Candidate Starts for LittleLaf_92:

(Start: 2 @53264 has 6 MA's), (Start: 3 @53273 has 16 MA's), (5, 53348), (6, 53351), (7, 53363), (11, 53480), (16, 53564), (Start: 26 @53702 has 1 MA's), (28, 53708), (37, 53816), (46, 53891), (47, 53894), (55, 53978), (63, 54044), (66, 54083), (70, 54110), (71, 54116), (73, 54155), (77, 54185), (79, 54203), (82, 54230), (87, 54317), (91, 54344), (96, 54383), (98, 54392), (104, 54440), (105, 54446), (108, 54479), (113, 54524), (116, 54542), (118, 54554), (119, 54560), (130, 54677), (132, 54707), (139, 54794), (140, 54800), (145, 54839), (153, 54908), (155, 54926), (156, 54929), (159, 54974), (160, 54977), (163, 54995), (164, 55001), (177, 55163), (179, 55187), (182, 55241), (183, 55244), (186, 55280), (187, 55292), (191, 55325), (192, 55331),

Gene: Marvin_88 Start: 53069, Stop: 55204, Start Num: 3

Candidate Starts for Marvin_88:

(Start: 2 @53060 has 6 MA's), (Start: 3 @53069 has 16 MA's), (5, 53144), (6, 53147), (7, 53159), (9, 53273), (11, 53276), (16, 53360), (17, 53363), (Start: 26 @53498 has 1 MA's), (28, 53504), (37, 53612), (46, 53687), (47, 53690), (55, 53774), (63, 53840), (66, 53879), (70, 53906), (71, 53912), (77, 53981), (79, 53999), (80, 54014), (82, 54026), (87, 54113), (91, 54140), (92, 54149), (96, 54179), (98, 54188), (104, 54236), (105, 54242), (108, 54275), (113, 54320), (116, 54338), (118, 54350), (119, 54356), (130, 54473), (139, 54590), (140, 54596), (145, 54635), (153, 54701), (155, 54719), (156, 54722), (159, 54767), (163, 54788), (164, 54794), (171, 54896), (177, 54956), (179, 54980), (182, 55034), (183, 55037), (186, 55073), (187, 55085), (191, 55118), (192, 55124),

Gene: MaryV_45 Start: 32875, Stop: 34998, Start Num: 2

Candidate Starts for MaryV_45:

(Start: 2 @32875 has 6 MA's), (4, 32953), (5, 32962), (8, 33028), (12, 33157), (13, 33160), (19, 33217), (21, 33244), (22, 33247), (24, 33283), (30, 33337), (37, 33427), (46, 33502), (54, 33577), (55, 33589), (56, 33598), (66, 33691), (70, 33718), (81, 33835), (85, 33871), (89, 33925), (91, 33943), (93, 33961), (98, 33985), (102, 34018), (103, 34024), (106, 34051), (110, 34084), (116, 34135), (121, 34159), (137, 34336), (138, 34345), (139, 34381), (144, 34411), (148, 34456), (149, 34459), (155, 34519), (156, 34522), (160, 34570), (161, 34573), (163, 34588), (164, 34594), (167, 34636), (168, 34639), (175, 34741), (178, 34774), (180, 34804), (185, 34849), (187, 34879), (193, 34924), (196, 34978),

Gene: MontyDev_32 Start: 29730, Stop: 31511, Start Num: 18

Candidate Starts for MontyDev_32:

(Start: 18 @29730 has 8 MA's), (Start: 25 @29844 has 1 MA's), (29, 29862), (41, 30018), (43, 30024), (47, 30036), (48, 30045), (49, 30048), (50, 30063), (52, 30093), (53, 30102), (65, 30189), (69, 30225), (72, 30252), (74, 30282), (76, 30300), (83, 30360), (95, 30483), (97, 30492), (109, 30588), (112, 30615), (114, 30627), (127, 30726), (134, 30825), (135, 30828), (136, 30831), (140, 30903), (146, 30957), (150, 30999), (157, 31041), (163, 31092), (168, 31143), (169, 31167), (176, 31251), (181, 31332), (183, 31338), (188, 31395), (190, 31419), (195, 31470), (198, 31497), (199, 31500),

Gene: MosMoris_90 Start: 53415, Stop: 55556, Start Num: 3

Candidate Starts for MosMoris_90:

(Start: 2 @53406 has 6 MA's), (Start: 3 @53415 has 16 MA's), (5, 53490), (7, 53505), (11, 53622), (16, 53706), (Start: 26 @53844 has 1 MA's), (28, 53850), (37, 53958), (45, 54030), (55, 54120), (63, 54186), (66, 54225), (70, 54252), (71, 54258), (77, 54327), (78, 54339), (79, 54345), (82, 54372), (86, 54453), (88, 54462), (93, 54501), (94, 54513), (96, 54522), (98, 54531), (112, 54654), (115, 54672), (123, 54735), (128, 54771), (138, 54897), (141, 54942), (152, 55038), (154, 55047), (158, 55077), (165, 55149), (172, 55266), (173, 55272), (175, 55290),

Gene: MrMiyagi_26 Start: 25272, Stop: 26906, Start Num: 26

Candidate Starts for MrMiyagi_26:

(Start: 26 @25272 has 1 MA's), (31, 25308), (39, 25398), (57, 25563), (59, 25575), (61, 25581), (62, 25587), (64, 25596), (74, 25701), (90, 25842), (99, 25902), (100, 25908), (126, 26115), (142, 26310), (152, 26394), (162, 26478), (163, 26484), (164, 26490), (168, 26535), (184, 26745), (189, 26796),

Gene: Nilo_33 Start: 30086, Stop: 31867, Start Num: 18

Candidate Starts for Nilo_33:

(Start: 18 @30086 has 8 MA's), (20, 30122), (Start: 25 @30200 has 1 MA's), (29, 30218), (35, 30293), (41, 30374), (43, 30380), (47, 30392), (48, 30401), (49, 30404), (50, 30419), (52, 30449), (53, 30458), (65, 30545), (69, 30581), (72, 30608), (74, 30638), (76, 30656), (83, 30716), (95, 30839), (97, 30848), (109, 30944), (112, 30971), (114, 30983), (127, 31082), (134, 31181), (135, 31184), (136, 31187), (140, 31259), (146, 31313), (150, 31355), (157, 31397), (163, 31448), (168, 31499), (169, 31523), (176, 31607), (181, 31688), (183, 31694), (188, 31751), (190, 31775), (195, 31826), (198, 31853), (199, 31856),

Gene: Papyrus_32 Start: 29745, Stop: 31526, Start Num: 18

Candidate Starts for Papyrus_32:

(Start: 18 @29745 has 8 MA's), (20, 29781), (Start: 25 @29859 has 1 MA's), (29, 29877), (35, 29952), (41, 30033), (43, 30039), (45, 30045), (47, 30051), (48, 30060), (49, 30063), (50, 30078), (52, 30108), (53, 30117), (65, 30204), (69, 30240), (72, 30267), (74, 30297), (76, 30315), (83, 30375), (95, 30498), (97, 30507), (109, 30603), (112, 30630), (114, 30642), (117, 30666), (120, 30678), (122, 30696), (127, 30741), (134, 30840), (135, 30843), (136, 30846), (146, 30972), (150, 31014), (151, 31017), (157, 31056), (163, 31107), (168, 31158), (169, 31182), (176, 31266), (180, 31326), (183, 31353), (188, 31410), (190, 31434), (195, 31485), (198, 31512), (199, 31515),

Gene: Poise_95 Start: 52997, Stop: 55138, Start Num: 3

Candidate Starts for Poise_95:

(Start: 2 @52988 has 6 MA's), (Start: 3 @52997 has 16 MA's), (5, 53072), (7, 53087), (11, 53204), (16, 53288), (Start: 26 @53426 has 1 MA's), (28, 53432), (37, 53540), (45, 53612), (55, 53702), (63, 53768), (66, 53807), (70, 53834), (71, 53840), (77, 53909), (78, 53921), (79, 53927), (82, 53954), (86, 54035), (88, 54044), (93, 54083), (94, 54095), (96, 54104), (98, 54113), (112, 54236), (115, 54254), (123, 54317), (128, 54353), (138, 54479), (141, 54524), (152, 54620), (154, 54629), (158, 54659), (165, 54731), (172, 54848), (173, 54854), (175, 54872),

Gene: Pringar_90 Start: 52785, Stop: 54923, Start Num: 3

Candidate Starts for Pringar_90:

(Start: 2 @52776 has 6 MA's), (Start: 3 @52785 has 16 MA's), (5, 52860), (6, 52863), (7, 52875), (11, 52992), (16, 53076), (Start: 26 @53214 has 1 MA's), (28, 53220), (37, 53328), (46, 53403), (47, 53406), (55, 53490), (63, 53556), (66, 53595), (70, 53622), (71, 53628), (73, 53667), (77, 53697), (79, 53715), (82, 53742), (87, 53829), (91, 53856), (92, 53865), (96, 53895), (98, 53904), (104, 53952), (105, 53958), (108, 53991), (113, 54036), (116, 54054), (118, 54066), (119, 54072), (130, 54189), (132, 54219), (139, 54306), (140, 54312), (145, 54351), (153, 54420), (155, 54438), (156, 54441), (159, 54486), (160, 54489), (163, 54507), (164, 54513), (177, 54675), (179, 54699), (182, 54753), (183, 54756), (186, 54792), (187, 54804), (191, 54837), (192, 54843),

Gene: Raela_96 Start: 53548, Stop: 55689, Start Num: 3

Candidate Starts for Raela_96:

(Start: 2 @53539 has 6 MA's), (Start: 3 @53548 has 16 MA's), (5, 53623), (7, 53638), (11, 53755), (16, 53839), (Start: 26 @53977 has 1 MA's), (28, 53983), (37, 54091), (45, 54163), (55, 54253), (63, 54319), (66, 54358), (70, 54385), (71, 54391), (77, 54460), (78, 54472), (79, 54478), (82, 54505), (86, 54586), (88, 54595), (93, 54634), (94, 54646), (96, 54655), (98, 54664), (112, 54787), (115, 54805), (123, 54868), (128, 54904), (138, 55030), (141, 55075), (152, 55171), (154, 55180), (158, 55210), (165, 55282), (172, 55399), (173, 55405), (175, 55423),

Gene: RedRaider77_94 Start: 52942, Stop: 55083, Start Num: 3

Candidate Starts for RedRaider77_94:

(Start: 2 @52933 has 6 MA's), (Start: 3 @52942 has 16 MA's), (5, 53017), (6, 53020), (7, 53032), (11, 53149), (16, 53233), (Start: 26 @53371 has 1 MA's), (28, 53377), (37, 53485), (45, 53557), (55, 53647), (63, 53713), (66, 53752), (70, 53779), (77, 53854), (78, 53866), (79, 53872), (82, 53899), (86, 53980), (88, 53989), (93, 54028), (96, 54049), (98, 54058), (112, 54181), (115, 54199), (123, 54262), (128, 54298), (138, 54424), (141, 54469), (152, 54565), (154, 54574), (158, 54604), (165, 54676), (166, 54694), (172, 54793), (173, 54799), (175, 54817),

Gene: Riparian_32 Start: 29547, Stop: 31328, Start Num: 18

Candidate Starts for Riparian_32:

(Start: 18 @29547 has 8 MA's), (Start: 25 @29661 has 1 MA's), (29, 29679), (41, 29835), (43, 29841), (47, 29853), (48, 29862), (49, 29865), (50, 29880), (52, 29910), (53, 29919), (65, 30006), (69, 30042), (72, 30069), (74, 30099), (76, 30117), (83, 30177), (95, 30300), (97, 30309), (109, 30405), (112, 30432), (114, 30444), (127, 30543), (134, 30642), (135, 30645), (136, 30648), (140, 30720), (146, 30774), (150, 30816), (157, 30858), (163, 30909), (168, 30960), (169, 30984), (176, 31068), (181, 31149), (183, 31155), (188, 31212), (190, 31236), (195, 31287), (198, 31314), (199, 31317),

Gene: Rope_32 Start: 29727, Stop: 31508, Start Num: 18

Candidate Starts for Rope_32:

(Start: 18 @29727 has 8 MA's), (20, 29763), (Start: 25 @29841 has 1 MA's), (29, 29859), (35, 29934), (41, 30015), (43, 30021), (47, 30033), (48, 30042), (49, 30045), (50, 30060), (52, 30090), (53, 30099), (65, 30186), (69, 30222), (72, 30249), (74, 30279), (76, 30297), (83, 30357), (95, 30480), (97, 30489), (109, 30585), (112, 30612), (114, 30624), (120, 30660), (122, 30678), (127, 30723), (134, 30822), (135, 30825), (136, 30828), (146, 30954), (150, 30996), (151, 30999), (157, 31038), (163, 31089), (168, 31140), (169, 31164), (170, 31191), (176, 31248), (180, 31308), (183, 31335), (188, 31392), (190, 31416), (195, 31467), (198, 31494), (199, 31497),

Gene: Send513_32 Start: 30083, Stop: 31864, Start Num: 18

Candidate Starts for Send513_32:

(Start: 18 @30083 has 8 MA's), (20, 30119), (Start: 25 @30197 has 1 MA's), (29, 30215), (35, 30290), (41, 30371), (43, 30377), (47, 30389), (48, 30398), (49, 30401), (50, 30416), (52, 30446), (53, 30455), (54, 30458), (65, 30542), (69, 30578), (72, 30605), (74, 30635), (76, 30653), (83, 30713), (84, 30716), (95, 30836), (97, 30845), (109, 30941), (112, 30968), (114, 30980), (120, 31016), (122, 31034), (127, 31079), (134, 31178), (135, 31181), (136, 31184), (146, 31310), (150, 31352), (151, 31355), (157, 31394), (163, 31445), (168, 31496), (169, 31520), (170, 31547), (176, 31604), (180, 31664), (183, 31691), (188, 31748), (190, 31772), (195, 31823), (198, 31850), (199, 31853),

Gene: Tesla_90 Start: 52791, Stop: 54932, Start Num: 3

Candidate Starts for Tesla_90:

(Start: 2 @52782 has 6 MA's), (Start: 3 @52791 has 16 MA's), (5, 52866), (7, 52881), (11, 52998), (16, 53082), (Start: 26 @53220 has 1 MA's), (28, 53226), (37, 53334), (45, 53406), (55, 53496), (63, 53562), (66, 53601), (70, 53628), (71, 53634), (77, 53703), (78, 53715), (79, 53721), (82, 53748), (86, 53829), (88, 53838), (93, 53877), (94, 53889), (96, 53898), (98, 53907), (112, 54030), (115, 54048),

(123, 54111), (128, 54147), (138, 54273), (141, 54318), (152, 54414), (154, 54423), (158, 54453), (165, 54525), (172, 54642), (173, 54648), (175, 54666),

Gene: VasuNzinga_92 Start: 52880, Stop: 55015, Start Num: 3

Candidate Starts for VasuNzinga_92:

(Start: 2 @52871 has 6 MA's), (Start: 3 @52880 has 16 MA's), (5, 52955), (6, 52958), (7, 52970), (9, 53084), (11, 53087), (16, 53171), (17, 53174), (Start: 26 @53309 has 1 MA's), (28, 53315), (37, 53423), (46, 53498), (47, 53501), (55, 53585), (63, 53651), (66, 53690), (70, 53717), (71, 53723), (77, 53792), (79, 53810), (80, 53825), (82, 53837), (87, 53924), (91, 53951), (92, 53960), (96, 53990), (98, 53999), (104, 54047), (105, 54053), (108, 54086), (113, 54131), (116, 54149), (119, 54167), (130, 54284), (139, 54401), (140, 54407), (145, 54446), (153, 54512), (155, 54530), (156, 54533), (159, 54578), (163, 54599), (164, 54605), (171, 54707), (177, 54767), (179, 54791), (182, 54845), (183, 54848), (186, 54884), (187, 54896), (191, 54929), (192, 54935),

Gene: Weiss13_32 Start: 29779, Stop: 31560, Start Num: 18

Candidate Starts for Weiss13_32:

(Start: 18 @29779 has 8 MA's), (20, 29815), (Start: 25 @29893 has 1 MA's), (29, 29911), (41, 30067), (43, 30073), (47, 30085), (48, 30094), (49, 30097), (50, 30112), (52, 30142), (53, 30151), (65, 30238), (69, 30274), (72, 30301), (74, 30331), (76, 30349), (83, 30409), (95, 30532), (97, 30541), (109, 30637), (112, 30664), (114, 30676), (127, 30775), (134, 30874), (135, 30877), (136, 30880), (140, 30952), (146, 31006), (150, 31048), (157, 31090), (163, 31141), (168, 31192), (169, 31216), (176, 31300), (181, 31381), (183, 31387), (188, 31444), (190, 31468), (195, 31519), (198, 31546), (199, 31549),

Gene: Wildcat_45 Start: 32885, Stop: 35008, Start Num: 2

Candidate Starts for Wildcat_45:

(Start: 2 @32885 has 6 MA's), (4, 32963), (5, 32972), (8, 33038), (12, 33167), (13, 33170), (19, 33227), (21, 33254), (22, 33257), (24, 33293), (30, 33347), (37, 33437), (46, 33512), (54, 33587), (55, 33599), (56, 33608), (66, 33701), (70, 33728), (81, 33845), (85, 33881), (89, 33935), (91, 33953), (93, 33971), (98, 33995), (102, 34028), (103, 34034), (106, 34061), (110, 34094), (116, 34145), (121, 34169), (137, 34346), (138, 34355), (139, 34391), (144, 34421), (148, 34466), (149, 34469), (155, 34529), (156, 34532), (160, 34580), (161, 34583), (163, 34598), (164, 34604), (167, 34646), (168, 34649), (175, 34751), (178, 34784), (180, 34814), (185, 34859), (187, 34889), (193, 34934), (196, 34988),

Gene: Yelo_32 Start: 30072, Stop: 31853, Start Num: 18

Candidate Starts for Yelo_32:

(Start: 18 @30072 has 8 MA's), (Start: 25 @30186 has 1 MA's), (29, 30204), (41, 30360), (43, 30366), (47, 30378), (48, 30387), (49, 30390), (50, 30405), (52, 30435), (53, 30444), (65, 30531), (69, 30567), (72, 30594), (74, 30624), (76, 30642), (83, 30702), (95, 30825), (97, 30834), (109, 30930), (112, 30957), (114, 30969), (127, 31068), (134, 31167), (135, 31170), (136, 31173), (140, 31245), (146, 31299), (150, 31341), (157, 31383), (163, 31434), (168, 31485), (169, 31509), (176, 31593), (181, 31674), (183, 31680), (188, 31737), (190, 31761), (194, 31803), (195, 31812), (198, 31839), (199, 31842),

Gene: Zenon_33 Start: 30091, Stop: 31872, Start Num: 18

Candidate Starts for Zenon_33:

(Start: 18 @30091 has 8 MA's), (20, 30127), (Start: 25 @30205 has 1 MA's), (29, 30223), (35, 30298), (41, 30379), (43, 30385), (47, 30397), (48, 30406), (49, 30409), (50, 30424), (52, 30454), (53, 30463), (65, 30550), (69, 30586), (72, 30613), (74, 30643), (76, 30661), (83, 30721), (95, 30844), (97, 30853), (109, 30949), (112, 30976), (114, 30988), (127, 31087), (134, 31186), (135, 31189), (136, 31192), (140, 31264), (146, 31318), (150, 31360), (157, 31402), (163, 31453), (168, 31504), (169, 31528), (176, 31612), (181, 31693), (183, 31699), (188, 31756), (190, 31780), (195, 31831), (198, 31858),

(199, 31861),