

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 157823 Report

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

Pham number 157823 has 75 members, 13 are drafts.

Phages represented in each track:

- Track 1 : Dattran_23, Goby_22, Toma_22
- Track 2 : Katalie_23, RedBear_24, South40_23
- Track 3 : Maneekul_22
- Track 4 : Lika_22
- Track 5 : Emaanora_24, TagePhighter_23, Asten_22, OzzyJ_23, Hippo_22, BarryBee_24, Dwayne_22, SarahRose_22, Chucky_22, Whatever_22, Snorlax_22, Triste_22
- Track 6 : Lorelei_22, Rana_22, Nabi_22
- Track 7 : Eddasa_23, Izzy_23, EnochSoames_24, Oliynyk_23, Jash_23, BryanRecycles_23, Rusticus_23
- Track 8 : TuanPN_22, Ejemplo_22
- Track 9 : Godpower_23
- Track 10 : Werner_22
- Track 11 : Zemlya_23
- Track 12 : Celeste_22
- Track 13 : Danzina_23
- Track 14 : Sujidade_23
- Track 15 : Yasdnil_22
- Track 16 : Brataylor_23
- Track 17 : Bowden_23, TinaBelcher_22
- Track 18 : Marav_25
- Track 19 : Paolo_26
- Track 20 : Puginator_26
- Track 21 : Daudau_22
- Track 22 : Andris_22
- Track 23 : Pablito_22
- Track 24 : Paedore_22
- Track 25 : ELB20_21, R4_22
- Track 26 : Janus_23
- Track 27 : Loofah_23
- Track 28 : Animus_23
- Track 29 : Jevington_25
- Track 30 : GirlDinner_23
- Track 31 : BartholomewSD_24, Alvy_24
- Track 32 : TrvxScott_21
- Track 33 : Hank144_23
- Track 34 : SqueakyClean_23

- Track 35 : Thestral_23
- Track 36 : Triumph_24
- Track 37 : Zainub_28
- Track 38 : Dexers_21
- Track 39 : Yosif_23
- Track 40 : Provolone_23, ElGato_24
- Track 41 : Verse_22
- Track 42 : Amela_22
- Track 43 : Vanseggelen_27
- Track 44 : Alsaber_23
- Track 45 : phiCAM_23
- Track 46 : Celery_25
- Track 47 : Conan_25

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

The start number called the most often in the published annotations is 7, it was called in 38 of the 62 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Asten_22, BarryBee_24, Brataylor_23, BryanRecycles_23, Celeste_22, Chucky_22, Danzina_23, Dattran_23, Dwayne_22, Eddasa_23, Ejemplo_22, Emaanora_24, EnochSoames_24, Goby_22, Godpower_23, Hippo_22, Izzy_23, Jash_23, Katalie_23, Lika_22, Lorelei_22, Maneekul_22, Nabi_22, Oliynyk_23, OzzyJ_23, Rana_22, RedBear_24, Rusticus_23, SarahRose_22, Snorlax_22, South40_23, Sujidade_23, TagePhighter_23, Toma_22, Triste_22, TuanPN_22, Werner_22, Whatever_22, Yasdnil_22, Zemlya_23,

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

-

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

- Alsaber_23, Alvy_24, Amela_22, Andris_22, Animus_23, BartholomewSD_24, Bowden_23, Celery_25, Conan_25, Daudau_22, Dexers_21, ELB20_21, ElGato_24, GirlDinner_23, Hank144_23, Janus_23, Jevington_25, Loofah_23, Marav_25, Pablito_22, Paedore_22, Paolo_26, Provolone_23, Puginator_26, R4_22, SqueakyClean_23, Thestral_23, TinaBelcher_22, Triumph_24, TrvxScott_21, Vanseggelen_27, Verse_22, Yosif_23, Zainub_28, phiCAM_23,

Summary by start number:

Start 4:

- Found in 24 of 75 (32.0%) of genes in pham
- Manual Annotations of this start: 18 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alvy_24 (BD2), Andris_22 (BD2), Animus_23 (BD2), BartholomewSD_24 (BD2), Bowden_23 (BD2), Daudau_22 (BD2), ELB20_21 (BD2), GirlDinner_23 (BD2), Hank144_23 (BD2), Janus_23 (BD2), Jevington_25 (BD2), Loofah_23 (BD2), Marav_25 (BD2), Pablito_22 (BD2), Paedore_22 (BD2), Paolo_26 (BD2), Puginator_26 (BD2), R4_22 (BD2),

SqueakyClean_23 (BD2), Thestral_23 (BD2), TinaBelcher_22 (BD2), Triumph_24 (BD2), TrvxScott_21 (BD2), Zainub_28 (BD2),

Start 7:

- Found in 40 of 75 (53.3%) of genes in pham
- Manual Annotations of this start: 38 of 62
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Asten_22 (BD1), BarryBee_24 (BD1), Brataylor_23 (BD1), BryanRecycles_23 (BD1), Celeste_22 (BD1), Chucky_22 (BD1), Danzina_23 (BD1), Dattran_23 (BD1), Dwayne_22 (BD1), Eddasa_23 (BD1), Ejemplo_22 (BD1), Emaanora_24 (BD1), EnochSoames_24 (BD1), Goby_22 (BD1), Godpower_23 (BD1), Hippo_22 (BD1), Izzy_23 (BD1), Jash_23 (BD1), Katalie_23 (BD1), Lika_22 (BD1), Lorelei_22 (BD1), Maneekul_22 (BD1), Nabi_22 (BD1), Oliynyk_23 (BD1), OzzyJ_23 (BD1), Rana_22 (BD1), RedBear_24 (BD1), Rusticus_23 (BD1), SarahRose_22 (BD1), Snorlax_22 (BD1), South40_23 (BD1), Sujidade_23 (BD1), TagePhighter_23 (BD1), Toma_22 (BD1), Triste_22 (BD1), TuanPN_22 (BD1), Werner_22 (BD1), Whatever_22 (BD1), Yasdnil_22 (BD1), Zemlya_23 (BD1),

Start 11:

- Found in 12 of 75 (16.0%) of genes in pham
- Manual Annotations of this start: 6 of 62
- Called 91.7% of time when present
- Phage (with cluster) where this start called: Alsaber_23 (BD3), Amela_22 (BD3), Celery_25 (BD3), Conan_25 (BD3), Dexers_21 (BD3), ElGato_24 (BD3), Provolone_23 (BD3), Vanseggelen_27 (BD3), Verse_22 (BD3), Yosif_23 (BD3), phiCAM_23 (BD3),

Summary by clusters:

There are 3 clusters represented in this pham: BD1, BD3, BD2,

Info for manual annotations of cluster BD1:

- Start number 7 was manually annotated 38 times for cluster BD1.

Info for manual annotations of cluster BD2:

- Start number 4 was manually annotated 18 times for cluster BD2.

Info for manual annotations of cluster BD3:

- Start number 11 was manually annotated 6 times for cluster BD3.

Gene Information:

Gene: Alsaber_23 Start: 18064, Stop: 19866, Start Num: 11

Candidate Starts for Alsaber_23:

(8, 18025), (Start: 11 @18064 has 6 MA's), (13, 18076), (20, 18172), (24, 18214), (29, 18274), (37, 18373), (61, 18589), (136, 18904), (138, 18925), (142, 18949), (145, 18982), (156, 19069), (164, 19126), (184, 19279), (188, 19327), (191, 19360), (199, 19414), (221, 19696), (226, 19738), (231, 19771),

Gene: Alvy_24 Start: 17376, Stop: 19559, Start Num: 4

Candidate Starts for Alvy_24:

(Start: 4 @17376 has 18 MA's), (6, 17412), (15, 17529), (21, 17610), (22, 17622), (38, 17811), (44, 17904), (51, 17970), (55, 18012), (63, 18045), (73, 18111), (94, 18297), (95, 18309), (103, 18360), (104, 18363), (113, 18453), (119, 18504), (134, 18618), (147, 18717), (150, 18744), (159, 18804), (166, 18858), (170, 18879), (171, 18882), (183, 18969), (191, 19059), (194, 19068), (198, 19104), (199, 19113), (202, 19149), (206, 19227), (218, 19353), (219, 19362), (228, 19443), (229, 19452),

Gene: Amela_22 Start: 18357, Stop: 20531, Start Num: 11

Candidate Starts for Amela_22:

(8, 18318), (Start: 11 @18357 has 6 MA's), (20, 18465), (24, 18507), (41, 18693), (55, 18912), (68, 18990), (70, 19011), (71, 19014), (83, 19122), (85, 19137), (97, 19245), (101, 19269), (105, 19311), (110, 19338), (111, 19365), (136, 19563), (140, 19602), (144, 19635), (151, 19689), (164, 19785), (199, 20073), (215, 20292), (221, 20355), (226, 20397), (231, 20436),

Gene: Andris_22 Start: 17081, Stop: 19264, Start Num: 4

Candidate Starts for Andris_22:

(Start: 4 @17081 has 18 MA's), (10, 17180), (14, 17216), (15, 17234), (38, 17516), (48, 17645), (51, 17675), (55, 17717), (73, 17822), (96, 18023), (97, 18026), (107, 18101), (126, 18260), (141, 18377), (148, 18434), (154, 18485), (159, 18512), (170, 18587), (175, 18617), (179, 18641), (193, 18773), (197, 18797), (198, 18812), (200, 18839), (206, 18935), (207, 18953), (208, 18992), (216, 19049), (219, 19070), (223, 19109), (226, 19142), (228, 19151), (236, 19250),

Gene: Animus_23 Start: 17417, Stop: 19603, Start Num: 4

Candidate Starts for Animus_23:

(Start: 4 @17417 has 18 MA's), (10, 17513), (14, 17549), (17, 17615), (23, 17672), (38, 17849), (51, 18008), (55, 18050), (76, 18164), (95, 18347), (103, 18398), (114, 18500), (127, 18605), (141, 18710), (143, 18737), (148, 18767), (170, 18920), (179, 18971), (198, 19145), (200, 19172), (202, 19190), (206, 19268), (210, 19337), (216, 19382), (220, 19424), (226, 19478),

Gene: Asten_22 Start: 17336, Stop: 19312, Start Num: 7

Candidate Starts for Asten_22:

(Start: 7 @17336 has 38 MA's), (31, 17639), (37, 17717), (65, 17915), (100, 18080), (105, 18125), (112, 18185), (120, 18251), (131, 18332), (132, 18341), (135, 18371), (176, 18665), (186, 18743), (189, 18782), (192, 18812), (198, 18854), (200, 18881), (208, 19034), (219, 19112), (220, 19133), (222, 19148), (224, 19157), (227, 19187), (230, 19211),

Gene: BarryBee_24 Start: 17346, Stop: 19322, Start Num: 7

Candidate Starts for BarryBee_24:

(Start: 7 @17346 has 38 MA's), (31, 17649), (37, 17727), (65, 17925), (100, 18090), (105, 18135), (112, 18195), (120, 18261), (131, 18342), (132, 18351), (135, 18381), (176, 18675), (186, 18753), (189, 18792), (192, 18822), (198, 18864), (200, 18891), (208, 19044), (219, 19122), (220, 19143), (222, 19158), (224, 19167), (227, 19197), (230, 19221),

Gene: BartholomewSD_24 Start: 17376, Stop: 19559, Start Num: 4

Candidate Starts for BartholomewSD_24:

(Start: 4 @17376 has 18 MA's), (6, 17412), (15, 17529), (21, 17610), (22, 17622), (38, 17811), (44, 17904), (51, 17970), (55, 18012), (63, 18045), (73, 18111), (94, 18297), (95, 18309), (103, 18360), (104, 18363), (113, 18453), (119, 18504), (134, 18618), (147, 18717), (150, 18744), (159, 18804), (166, 18858), (170, 18879), (171, 18882), (183, 18969), (191, 19059), (194, 19068), (198, 19104), (199, 19113), (202, 19149), (206, 19227), (218, 19353), (219, 19362), (228, 19443), (229, 19452),

Gene: Bowden_23 Start: 17308, Stop: 19491, Start Num: 4

Candidate Starts for Bowden_23:

(Start: 4 @17308 has 18 MA's), (6, 17344), (10, 17407), (14, 17443), (15, 17461), (21, 17542), (22, 17554), (38, 17743), (44, 17836), (51, 17902), (55, 17944), (63, 17977), (73, 18043), (94, 18229), (95, 18241), (103, 18292), (150, 18676), (159, 18736), (165, 18781), (166, 18790), (170, 18811), (171, 18814), (191, 18991), (194, 19000), (196, 19009), (198, 19036), (199, 19045), (206, 19159), (219, 19294), (229, 19384),

Gene: Brataylor_23 Start: 17360, Stop: 19348, Start Num: 7

Candidate Starts for Brataylor_23:

(3, 17252), (Start: 7 @17360 has 38 MA's), (9, 17396), (18, 17516), (37, 17735), (54, 17888), (57, 17909), (65, 17942), (77, 17972), (100, 18110), (109, 18179), (111, 18209), (112, 18215), (120, 18284), (131, 18365), (135, 18404), (145, 18482), (152, 18545), (157, 18575), (186, 18776), (197, 18872), (198, 18887), (200, 18914), (207, 19028), (220, 19166), (227, 19220), (233, 19280),

Gene: BryanRecycles_23 Start: 17521, Stop: 19164, Start Num: 7

Candidate Starts for BryanRecycles_23:

(Start: 7 @17521 has 38 MA's), (19, 17692), (28, 17764), (30, 17815), (37, 17896), (47, 18007), (120, 18103), (124, 18136), (131, 18184), (132, 18193), (135, 18223), (146, 18304), (156, 18388), (157, 18394), (173, 18490), (174, 18511), (178, 18532), (187, 18601), (188, 18628), (197, 18691), (198, 18706), (199, 18715), (200, 18733), (205, 18829), (213, 18925), (216, 18943), (217, 18952), (220, 18985), (227, 19039), (228, 19045),

Gene: Celery_25 Start: 18018, Stop: 19919, Start Num: 11

Candidate Starts for Celery_25:

(Start: 11 @18018 has 6 MA's), (24, 18168), (37, 18327), (75, 18528), (89, 18576), (110, 18744), (122, 18855), (123, 18864), (136, 18960), (142, 19005), (144, 19032), (146, 19041), (151, 19086), (164, 19182), (199, 19470), (211, 19662), (212, 19668), (221, 19749),

Gene: Celeste_22 Start: 17352, Stop: 19334, Start Num: 7

Candidate Starts for Celeste_22:

(5, 17322), (Start: 7 @17352 has 38 MA's), (Start: 11 @17412 has 6 MA's), (18, 17505), (37, 17724), (52, 17868), (54, 17877), (57, 17898), (100, 18099), (109, 18168), (111, 18198), (112, 18204), (120, 18273), (131, 18354), (135, 18393), (145, 18471), (186, 18765), (189, 18804), (192, 18834), (197, 18861), (198, 18876), (200, 18903), (201, 18909), (205, 18999), (208, 19056), (219, 19134), (220, 19155), (222, 19170), (227, 19209), (230, 19233), (236, 19320),

Gene: Chucky_22 Start: 17347, Stop: 19323, Start Num: 7

Candidate Starts for Chucky_22:

(Start: 7 @17347 has 38 MA's), (31, 17650), (37, 17728), (65, 17926), (100, 18091), (105, 18136), (112, 18196), (120, 18262), (131, 18343), (132, 18352), (135, 18382), (176, 18676), (186, 18754), (189, 18793), (192, 18823), (198, 18865), (200, 18892), (208, 19045), (219, 19123), (220, 19144), (222, 19159), (224, 19168), (227, 19198), (230, 19222),

Gene: Conan_25 Start: 17786, Stop: 19858, Start Num: 11

Candidate Starts for Conan_25:

(8, 17747), (Start: 11 @17786 has 6 MA's), (24, 17936), (41, 18122), (46, 18212), (65, 18332), (71, 18362), (84, 18461), (85, 18467), (89, 18500), (97, 18575), (105, 18641), (110, 18668), (123, 18794), (136, 18890), (140, 18929), (142, 18935), (144, 18962), (151, 19016), (164, 19112), (173, 19157), (180, 19223), (191, 19346), (199, 19400), (215, 19619), (221, 19682), (226, 19724), (231, 19763),

Gene: Danzina_23 Start: 17562, Stop: 19547, Start Num: 7

Candidate Starts for Danzina_23:

(3, 17454), (Start: 7 @17562 has 38 MA's), (18, 17718), (37, 17937), (54, 18090), (57, 18111), (65, 18144), (92, 18258), (105, 18357), (109, 18381), (111, 18411), (112, 18417), (120, 18486), (131,

18567), (135, 18606), (145, 18684), (186, 18978), (189, 19017), (192, 19047), (197, 19074), (198, 19089), (200, 19116), (201, 19122), (205, 19212), (208, 19269), (219, 19347), (220, 19368), (222, 19383), (227, 19422), (230, 19446), (236, 19533),

Gene: Dattran_23 Start: 17351, Stop: 19336, Start Num: 7

Candidate Starts for Dattran_23:

(Start: 7 @17351 has 38 MA's), (18, 17507), (37, 17726), (54, 17879), (57, 17900), (100, 18101), (109, 18170), (110, 18173), (111, 18200), (112, 18206), (120, 18275), (131, 18356), (135, 18395), (186, 18767), (189, 18806), (192, 18836), (197, 18863), (198, 18878), (200, 18905), (201, 18911), (208, 19058), (219, 19136), (220, 19157), (222, 19172), (227, 19211), (230, 19235),

Gene: Daudau_22 Start: 17288, Stop: 19480, Start Num: 4

Candidate Starts for Daudau_22:

(Start: 4 @17288 has 18 MA's), (10, 17387), (14, 17423), (24, 17561), (25, 17567), (32, 17657), (36, 17705), (51, 17882), (55, 17924), (87, 18134), (98, 18233), (114, 18371), (116, 18380), (130, 18494), (133, 18524), (166, 18776), (170, 18797), (197, 19007), (198, 19022), (200, 19049), (206, 19145), (207, 19163), (216, 19259), (220, 19301), (226, 19355), (236, 19466),

Gene: Dexers_21 Start: 17767, Stop: 19797, Start Num: 11

Candidate Starts for Dexers_21:

(8, 17728), (Start: 11 @17767 has 6 MA's), (13, 17779), (20, 17875), (24, 17917), (29, 17977), (33, 18031), (37, 18076), (72, 18358), (80, 18409), (108, 18622), (123, 18751), (127, 18772), (128, 18775), (136, 18835), (140, 18874), (142, 18880), (144, 18907), (146, 18916), (164, 19057), (184, 19210), (199, 19345), (205, 19459), (221, 19627), (226, 19669), (231, 19702),

Gene: Dwayne_22 Start: 17343, Stop: 19310, Start Num: 7

Candidate Starts for Dwayne_22:

(Start: 7 @17343 has 38 MA's), (31, 17637), (37, 17715), (65, 17913), (100, 18078), (105, 18123), (112, 18183), (120, 18249), (131, 18330), (132, 18339), (135, 18369), (176, 18663), (186, 18741), (189, 18780), (192, 18810), (198, 18852), (200, 18879), (208, 19032), (219, 19110), (220, 19131), (222, 19146), (224, 19155), (227, 19185), (230, 19209),

Gene: ELB20_21 Start: 17412, Stop: 19601, Start Num: 4

Candidate Starts for ELB20_21:

(Start: 4 @17412 has 18 MA's), (12, 17535), (35, 17826), (38, 17847), (51, 18006), (65, 18093), (67, 18099), (87, 18273), (125, 18594), (147, 18765), (166, 18906), (170, 18927), (198, 19152), (202, 19197), (203, 19227), (206, 19275), (223, 19449), (225, 19470), (229, 19500),

Gene: Eddasa_23 Start: 17521, Stop: 19164, Start Num: 7

Candidate Starts for Eddasa_23:

(Start: 7 @17521 has 38 MA's), (19, 17692), (28, 17764), (30, 17815), (37, 17896), (47, 18007), (120, 18103), (124, 18136), (131, 18184), (132, 18193), (135, 18223), (146, 18304), (156, 18388), (157, 18394), (173, 18490), (174, 18511), (178, 18532), (187, 18601), (188, 18628), (197, 18691), (198, 18706), (199, 18715), (200, 18733), (205, 18829), (213, 18925), (216, 18943), (217, 18952), (220, 18985), (227, 19039), (228, 19045),

Gene: Ejemplo_22 Start: 17343, Stop: 19334, Start Num: 7

Candidate Starts for Ejemplo_22:

(Start: 7 @17343 has 38 MA's), (31, 17646), (37, 17724), (54, 17877), (57, 17898), (100, 18099), (120, 18273), (131, 18354), (135, 18393), (176, 18687), (186, 18765), (189, 18804), (192, 18834), (198, 18876), (200, 18903), (201, 18909), (207, 19017), (219, 19134), (220, 19155), (222, 19170), (224, 19179), (227, 19209), (230, 19233),

Gene: ElGato_24 Start: 17789, Stop: 19504, Start Num: 11

Candidate Starts for ElGato_24:

(8, 17750), (Start: 11 @17789 has 6 MA's), (24, 17939), (29, 17999), (41, 18125), (65, 18335), (123, 18452), (136, 18536), (142, 18581), (145, 18614), (164, 18758), (173, 18803), (180, 18869), (191, 18992), (199, 19046), (215, 19265), (221, 19328), (226, 19370), (231, 19409),

Gene: Emaanora_24 Start: 17346, Stop: 19322, Start Num: 7

Candidate Starts for Emaanora_24:

(Start: 7 @17346 has 38 MA's), (31, 17649), (37, 17727), (65, 17925), (100, 18090), (105, 18135), (112, 18195), (120, 18261), (131, 18342), (132, 18351), (135, 18381), (176, 18675), (186, 18753), (189, 18792), (192, 18822), (198, 18864), (200, 18891), (208, 19044), (219, 19122), (220, 19143), (222, 19158), (224, 19167), (227, 19197), (230, 19221),

Gene: EnochSoames_24 Start: 17517, Stop: 19160, Start Num: 7

Candidate Starts for EnochSoames_24:

(Start: 7 @17517 has 38 MA's), (19, 17688), (28, 17760), (30, 17811), (37, 17892), (47, 18003), (120, 18099), (124, 18132), (131, 18180), (132, 18189), (135, 18219), (146, 18300), (156, 18384), (157, 18390), (173, 18486), (174, 18507), (178, 18528), (187, 18597), (188, 18624), (197, 18687), (198, 18702), (199, 18711), (200, 18729), (205, 18825), (213, 18921), (216, 18939), (217, 18948), (220, 18981), (227, 19035), (228, 19041),

Gene: GirlDinner_23 Start: 17079, Stop: 19265, Start Num: 4

Candidate Starts for GirlDinner_23:

(Start: 4 @17079 has 18 MA's), (10, 17175), (14, 17211), (17, 17277), (23, 17334), (38, 17511), (51, 17670), (55, 17712), (76, 17826), (95, 18009), (103, 18060), (114, 18162), (127, 18267), (141, 18372), (143, 18399), (148, 18429), (170, 18582), (179, 18633), (188, 18729), (197, 18792), (198, 18807), (200, 18834), (202, 18852), (206, 18930), (216, 19044), (220, 19086), (226, 19140), (234, 19215),

Gene: Goby_22 Start: 17357, Stop: 19342, Start Num: 7

Candidate Starts for Goby_22:

(Start: 7 @17357 has 38 MA's), (18, 17513), (37, 17732), (54, 17885), (57, 17906), (100, 18107), (109, 18176), (110, 18179), (111, 18206), (112, 18212), (120, 18281), (131, 18362), (135, 18401), (186, 18773), (189, 18812), (192, 18842), (197, 18869), (198, 18884), (200, 18911), (201, 18917), (208, 19064), (219, 19142), (220, 19163), (222, 19178), (227, 19217), (230, 19241),

Gene: Godpower_23 Start: 17368, Stop: 19353, Start Num: 7

Candidate Starts for Godpower_23:

(Start: 7 @17368 has 38 MA's), (18, 17524), (37, 17743), (54, 17896), (57, 17917), (100, 18118), (109, 18187), (111, 18217), (112, 18223), (120, 18292), (126, 18340), (131, 18373), (132, 18382), (135, 18412), (145, 18490), (152, 18553), (192, 18853), (198, 18895), (200, 18922), (207, 19036), (219, 19153), (220, 19174), (222, 19189), (227, 19228), (230, 19252), (232, 19261),

Gene: Hank144_23 Start: 17474, Stop: 19687, Start Num: 4

Candidate Starts for Hank144_23:

(Start: 4 @17474 has 18 MA's), (14, 17609), (17, 17675), (23, 17732), (38, 17909), (51, 18068), (55, 18110), (58, 18125), (62, 18140), (65, 18152), (87, 18320), (91, 18359), (93, 18386), (114, 18557), (116, 18566), (137, 18743), (155, 18896), (161, 18950), (163, 18962), (169, 18995), (170, 19001), (190, 19181), (208, 19409), (210, 19421), (213, 19445), (221, 19517),

Gene: Hippo_22 Start: 17346, Stop: 19322, Start Num: 7

Candidate Starts for Hippo_22:

(Start: 7 @17346 has 38 MA's), (31, 17649), (37, 17727), (65, 17925), (100, 18090), (105, 18135), (112, 18195), (120, 18261), (131, 18342), (132, 18351), (135, 18381), (176, 18675), (186, 18753),

(189, 18792), (192, 18822), (198, 18864), (200, 18891), (208, 19044), (219, 19122), (220, 19143), (222, 19158), (224, 19167), (227, 19197), (230, 19221),

Gene: Izzy_23 Start: 17568, Stop: 19211, Start Num: 7

Candidate Starts for Izzy_23:

(Start: 7 @17568 has 38 MA's), (19, 17739), (28, 17811), (30, 17862), (37, 17943), (47, 18054), (120, 18150), (124, 18183), (131, 18231), (132, 18240), (135, 18270), (146, 18351), (156, 18435), (157, 18441), (173, 18537), (174, 18558), (178, 18579), (187, 18648), (188, 18675), (197, 18738), (198, 18753), (199, 18762), (200, 18780), (205, 18876), (213, 18972), (216, 18990), (217, 18999), (220, 19032), (227, 19086), (228, 19092),

Gene: Janus_23 Start: 17417, Stop: 19603, Start Num: 4

Candidate Starts for Janus_23:

(Start: 4 @17417 has 18 MA's), (10, 17513), (14, 17549), (17, 17615), (23, 17672), (38, 17849), (51, 18008), (55, 18050), (63, 18083), (76, 18164), (82, 18221), (95, 18347), (103, 18398), (114, 18500), (127, 18605), (141, 18710), (143, 18737), (148, 18767), (170, 18920), (179, 18971), (188, 19067), (197, 19130), (198, 19145), (200, 19172), (202, 19190), (206, 19268), (216, 19382), (220, 19424), (226, 19478), (234, 19553),

Gene: Jash_23 Start: 17521, Stop: 19164, Start Num: 7

Candidate Starts for Jash_23:

(Start: 7 @17521 has 38 MA's), (19, 17692), (28, 17764), (30, 17815), (37, 17896), (47, 18007), (120, 18103), (124, 18136), (131, 18184), (132, 18193), (135, 18223), (146, 18304), (156, 18388), (157, 18394), (173, 18490), (174, 18511), (178, 18532), (187, 18601), (188, 18628), (197, 18691), (198, 18706), (199, 18715), (200, 18733), (205, 18829), (213, 18925), (216, 18943), (217, 18952), (220, 18985), (227, 19039), (228, 19045),

Gene: Jevington_25 Start: 17726, Stop: 19936, Start Num: 4

Candidate Starts for Jevington_25:

(Start: 4 @17726 has 18 MA's), (10, 17825), (14, 17861), (23, 17984), (24, 17999), (40, 18179), (43, 18251), (51, 18320), (56, 18371), (76, 18476), (114, 18815), (116, 18824), (161, 19208), (163, 19220), (170, 19259), (191, 19442), (194, 19451), (196, 19460), (198, 19487), (199, 19496), (201, 19520), (206, 19610), (218, 19736), (219, 19745),

Gene: Katalie_23 Start: 17609, Stop: 19588, Start Num: 7

Candidate Starts for Katalie_23:

(Start: 7 @17609 has 38 MA's), (18, 17771), (37, 17987), (54, 18140), (59, 18164), (65, 18185), (92, 18299), (100, 18353), (111, 18452), (112, 18458), (120, 18527), (131, 18608), (135, 18647), (149, 18755), (156, 18812), (167, 18893), (192, 19088), (197, 19115), (198, 19130), (200, 19157), (201, 19163), (207, 19271), (214, 19355), (219, 19388), (220, 19409), (227, 19463), (230, 19487),

Gene: Lika_22 Start: 17372, Stop: 19357, Start Num: 7

Candidate Starts for Lika_22:

(Start: 7 @17372 has 38 MA's), (18, 17528), (37, 17747), (54, 17900), (57, 17921), (100, 18122), (109, 18191), (111, 18221), (112, 18227), (115, 18254), (120, 18296), (126, 18344), (131, 18377), (132, 18386), (135, 18416), (145, 18494), (152, 18557), (192, 18857), (198, 18899), (200, 18926), (207, 19040), (219, 19157), (220, 19178), (222, 19193), (227, 19232), (230, 19256), (232, 19265),

Gene: Loofah_23 Start: 17341, Stop: 19530, Start Num: 4

Candidate Starts for Loofah_23:

(Start: 4 @17341 has 18 MA's), (15, 17494), (16, 17536), (24, 17614), (38, 17776), (45, 17875), (49, 17914), (51, 17935), (65, 18022), (67, 18028), (87, 18202), (142, 18649), (166, 18835), (181, 18919), (187, 18976), (202, 19123), (209, 19264), (213, 19294), (217, 19321), (221, 19366), (229, 19426),

Gene: Lorelei_22 Start: 17342, Stop: 19327, Start Num: 7

Candidate Starts for Lorelei_22:

(3, 17234), (Start: 7 @17342 has 38 MA's), (18, 17498), (37, 17717), (57, 17891), (77, 17954), (120, 18266), (131, 18347), (132, 18356), (135, 18386), (192, 18827), (198, 18869), (200, 18896), (201, 18902), (205, 18992), (207, 19010), (219, 19127), (220, 19148), (222, 19163), (224, 19172), (227, 19202), (230, 19226), (232, 19235),

Gene: Maneekul_22 Start: 17342, Stop: 19333, Start Num: 7

Candidate Starts for Maneekul_22:

(Start: 7 @17342 has 38 MA's), (31, 17645), (37, 17723), (54, 17876), (57, 17897), (100, 18098), (120, 18272), (131, 18353), (135, 18392), (145, 18470), (152, 18533), (157, 18563), (176, 18686), (186, 18764), (189, 18803), (192, 18833), (198, 18875), (200, 18902), (201, 18908), (207, 19016), (219, 19133), (220, 19154), (222, 19169), (224, 19178), (227, 19208), (230, 19232),

Gene: Marav_25 Start: 18076, Stop: 20283, Start Num: 4

Candidate Starts for Marav_25:

(Start: 4 @18076 has 18 MA's), (6, 18112), (10, 18175), (14, 18211), (24, 18349), (43, 18601), (51, 18670), (65, 18754), (91, 18961), (93, 18988), (114, 19162), (116, 19171), (118, 19186), (155, 19501), (160, 19546), (161, 19555), (163, 19567), (191, 19789), (194, 19798), (195, 19804), (198, 19834), (199, 19843), (206, 19957), (213, 20053), (219, 20092),

Gene: Nabi_22 Start: 17342, Stop: 19327, Start Num: 7

Candidate Starts for Nabi_22:

(3, 17234), (Start: 7 @17342 has 38 MA's), (18, 17498), (37, 17717), (57, 17891), (77, 17954), (120, 18266), (131, 18347), (132, 18356), (135, 18386), (192, 18827), (198, 18869), (200, 18896), (201, 18902), (205, 18992), (207, 19010), (219, 19127), (220, 19148), (222, 19163), (224, 19172), (227, 19202), (230, 19226), (232, 19235),

Gene: Oliynyk_23 Start: 17521, Stop: 19164, Start Num: 7

Candidate Starts for Oliynyk_23:

(Start: 7 @17521 has 38 MA's), (19, 17692), (28, 17764), (30, 17815), (37, 17896), (47, 18007), (120, 18103), (124, 18136), (131, 18184), (132, 18193), (135, 18223), (146, 18304), (156, 18388), (157, 18394), (173, 18490), (174, 18511), (178, 18532), (187, 18601), (188, 18628), (197, 18691), (198, 18706), (199, 18715), (200, 18733), (205, 18829), (213, 18925), (216, 18943), (217, 18952), (220, 18985), (227, 19039), (228, 19045),

Gene: OzzyJ_23 Start: 17337, Stop: 19313, Start Num: 7

Candidate Starts for OzzyJ_23:

(Start: 7 @17337 has 38 MA's), (31, 17640), (37, 17718), (65, 17916), (100, 18081), (105, 18126), (112, 18186), (120, 18252), (131, 18333), (132, 18342), (135, 18372), (176, 18666), (186, 18744), (189, 18783), (192, 18813), (198, 18855), (200, 18882), (208, 19035), (219, 19113), (220, 19134), (222, 19149), (224, 19158), (227, 19188), (230, 19212),

Gene: Pablito_22 Start: 17181, Stop: 19376, Start Num: 4

Candidate Starts for Pablito_22:

(Start: 4 @17181 has 18 MA's), (10, 17280), (14, 17316), (23, 17439), (24, 17454), (27, 17469), (44, 17709), (51, 17775), (90, 18060), (106, 18195), (114, 18270), (141, 18480), (143, 18507), (148, 18537), (158, 18606), (161, 18639), (168, 18678), (172, 18699), (183, 18789), (188, 18846), (198, 18924), (200, 18951), (206, 19047), (216, 19161), (219, 19182), (223, 19221), (226, 19254), (228, 19263),

Gene: Paedore_22 Start: 17341, Stop: 19530, Start Num: 4

Candidate Starts for Paedore_22:

(Start: 4 @17341 has 18 MA's), (15, 17494), (16, 17536), (24, 17614), (38, 17776), (45, 17875), (49, 17914), (51, 17935), (65, 18022), (67, 18028), (87, 18202), (142, 18649), (166, 18835), (170, 18856), (181, 18919), (187, 18976), (202, 19123), (209, 19264), (213, 19294), (217, 19321), (221, 19366), (229, 19426),

Gene: Paolo_26 Start: 17738, Stop: 19948, Start Num: 4

Candidate Starts for Paolo_26:

(Start: 4 @17738 has 18 MA's), (6, 17774), (10, 17837), (32, 18107), (39, 18179), (51, 18332), (55, 18374), (63, 18407), (73, 18473), (94, 18659), (95, 18671), (114, 18827), (137, 19013), (138, 19019), (149, 19103), (155, 19166), (161, 19220), (163, 19232), (191, 19454), (194, 19463), (198, 19499), (199, 19508), (206, 19622), (207, 19640), (213, 19718), (219, 19757),

Gene: Provolone_23 Start: 17789, Stop: 19504, Start Num: 11

Candidate Starts for Provolone_23:

(8, 17750), (Start: 11 @17789 has 6 MA's), (24, 17939), (29, 17999), (41, 18125), (65, 18335), (123, 18452), (136, 18536), (142, 18581), (145, 18614), (164, 18758), (173, 18803), (180, 18869), (191, 18992), (199, 19046), (215, 19265), (221, 19328), (226, 19370), (231, 19409),

Gene: Puginator_26 Start: 17783, Stop: 19963, Start Num: 4

Candidate Starts for Puginator_26:

(Start: 4 @17783 has 18 MA's), (10, 17882), (14, 17918), (24, 18056), (43, 18308), (51, 18377), (69, 18500), (96, 18725), (127, 18974), (141, 19079), (143, 19106), (148, 19136), (153, 19181), (161, 19238), (162, 19244), (170, 19289), (191, 19469), (194, 19478), (198, 19514), (199, 19523), (206, 19637), (213, 19733), (218, 19763), (219, 19772),

Gene: R4_22 Start: 17423, Stop: 19612, Start Num: 4

Candidate Starts for R4_22:

(Start: 4 @17423 has 18 MA's), (12, 17546), (35, 17837), (38, 17858), (51, 18017), (65, 18104), (67, 18110), (87, 18284), (125, 18605), (147, 18776), (166, 18917), (170, 18938), (198, 19163), (202, 19208), (203, 19238), (206, 19286), (223, 19460), (225, 19481), (229, 19511),

Gene: Rana_22 Start: 17342, Stop: 19327, Start Num: 7

Candidate Starts for Rana_22:

(3, 17234), (Start: 7 @17342 has 38 MA's), (18, 17498), (37, 17717), (57, 17891), (77, 17954), (120, 18266), (131, 18347), (132, 18356), (135, 18386), (192, 18827), (198, 18869), (200, 18896), (201, 18902), (205, 18992), (207, 19010), (219, 19127), (220, 19148), (222, 19163), (224, 19172), (227, 19202), (230, 19226), (232, 19235),

Gene: RedBear_24 Start: 17609, Stop: 19588, Start Num: 7

Candidate Starts for RedBear_24:

(Start: 7 @17609 has 38 MA's), (18, 17771), (37, 17987), (54, 18140), (59, 18164), (65, 18185), (92, 18299), (100, 18353), (111, 18452), (112, 18458), (120, 18527), (131, 18608), (135, 18647), (149, 18755), (156, 18812), (167, 18893), (192, 19088), (197, 19115), (198, 19130), (200, 19157), (201, 19163), (207, 19271), (214, 19355), (219, 19388), (220, 19409), (227, 19463), (230, 19487),

Gene: Rusticus_23 Start: 17521, Stop: 19164, Start Num: 7

Candidate Starts for Rusticus_23:

(Start: 7 @17521 has 38 MA's), (19, 17692), (28, 17764), (30, 17815), (37, 17896), (47, 18007), (120, 18103), (124, 18136), (131, 18184), (132, 18193), (135, 18223), (146, 18304), (156, 18388), (157, 18394), (173, 18490), (174, 18511), (178, 18532), (187, 18601), (188, 18628), (197, 18691), (198, 18706), (199, 18715), (200, 18733), (205, 18829), (213, 18925), (216, 18943), (217, 18952), (220, 18985), (227, 19039), (228, 19045),

Gene: SarahRose_22 Start: 17343, Stop: 19319, Start Num: 7

Candidate Starts for SarahRose_22:

(Start: 7 @17343 has 38 MA's), (31, 17646), (37, 17724), (65, 17922), (100, 18087), (105, 18132), (112, 18192), (120, 18258), (131, 18339), (132, 18348), (135, 18378), (176, 18672), (186, 18750), (189, 18789), (192, 18819), (198, 18861), (200, 18888), (208, 19041), (219, 19119), (220, 19140), (222, 19155), (224, 19164), (227, 19194), (230, 19218),

Gene: Snorlax_22 Start: 17346, Stop: 19322, Start Num: 7

Candidate Starts for Snorlax_22:

(Start: 7 @17346 has 38 MA's), (31, 17649), (37, 17727), (65, 17925), (100, 18090), (105, 18135), (112, 18195), (120, 18261), (131, 18342), (132, 18351), (135, 18381), (176, 18675), (186, 18753), (189, 18792), (192, 18822), (198, 18864), (200, 18891), (208, 19044), (219, 19122), (220, 19143), (222, 19158), (224, 19167), (227, 19197), (230, 19221),

Gene: South40_23 Start: 17609, Stop: 19588, Start Num: 7

Candidate Starts for South40_23:

(Start: 7 @17609 has 38 MA's), (18, 17771), (37, 17987), (54, 18140), (59, 18164), (65, 18185), (92, 18299), (100, 18353), (111, 18452), (112, 18458), (120, 18527), (131, 18608), (135, 18647), (149, 18755), (156, 18812), (167, 18893), (192, 19088), (197, 19115), (198, 19130), (200, 19157), (201, 19163), (207, 19271), (214, 19355), (219, 19388), (220, 19409), (227, 19463), (230, 19487),

Gene: SqueakyClean_23 Start: 17343, Stop: 19529, Start Num: 4

Candidate Starts for SqueakyClean_23:

(Start: 4 @17343 has 18 MA's), (10, 17439), (14, 17475), (17, 17541), (23, 17598), (38, 17775), (51, 17934), (55, 17976), (63, 18009), (76, 18090), (95, 18273), (103, 18324), (114, 18426), (127, 18531), (141, 18636), (143, 18663), (148, 18693), (170, 18846), (179, 18897), (198, 19071), (200, 19098), (202, 19116), (206, 19194), (210, 19263), (214, 19296), (216, 19308), (226, 19404),

Gene: Sujidade_23 Start: 17648, Stop: 19633, Start Num: 7

Candidate Starts for Sujidade_23:

(Start: 7 @17648 has 38 MA's), (18, 17804), (37, 18023), (54, 18176), (57, 18197), (100, 18398), (109, 18467), (110, 18470), (111, 18497), (112, 18503), (120, 18572), (126, 18620), (131, 18653), (135, 18692), (186, 19064), (189, 19103), (192, 19133), (197, 19160), (198, 19175), (200, 19202), (201, 19208), (205, 19298), (208, 19355), (219, 19433), (220, 19454), (222, 19469), (227, 19508), (230, 19532),

Gene: TagePhighter_23 Start: 17346, Stop: 19322, Start Num: 7

Candidate Starts for TagePhighter_23:

(Start: 7 @17346 has 38 MA's), (31, 17649), (37, 17727), (65, 17925), (100, 18090), (105, 18135), (112, 18195), (120, 18261), (131, 18342), (132, 18351), (135, 18381), (176, 18675), (186, 18753), (189, 18792), (192, 18822), (198, 18864), (200, 18891), (208, 19044), (219, 19122), (220, 19143), (222, 19158), (224, 19167), (227, 19197), (230, 19221),

Gene: Thestral_23 Start: 17311, Stop: 19494, Start Num: 4

Candidate Starts for Thestral_23:

(Start: 4 @17311 has 18 MA's), (10, 17410), (21, 17545), (22, 17557), (23, 17569), (38, 17746), (44, 17839), (51, 17905), (53, 17926), (63, 17980), (73, 18046), (86, 18157), (94, 18232), (95, 18244), (103, 18295), (104, 18298), (114, 18397), (147, 18652), (150, 18679), (159, 18739), (166, 18793), (170, 18814), (171, 18817), (183, 18904), (191, 18994), (194, 19003), (196, 19012), (198, 19039), (199, 19048), (206, 19162), (218, 19288), (219, 19297), (222, 19333), (229, 19387),

Gene: TinaBelcher_22 Start: 17259, Stop: 19442, Start Num: 4

Candidate Starts for TinaBelcher_22:

(Start: 4 @17259 has 18 MA's), (6, 17295), (10, 17358), (14, 17394), (15, 17412), (21, 17493), (22, 17505), (38, 17694), (44, 17787), (51, 17853), (55, 17895), (63, 17928), (73, 17994), (94, 18180), (95, 18192), (103, 18243), (150, 18627), (159, 18687), (165, 18732), (166, 18741), (170, 18762), (171, 18765), (191, 18942), (194, 18951), (196, 18960), (198, 18987), (199, 18996), (206, 19110), (219, 19245), (229, 19335),

Gene: Toma_22 Start: 17357, Stop: 19342, Start Num: 7

Candidate Starts for Toma_22:

(Start: 7 @17357 has 38 MA's), (18, 17513), (37, 17732), (54, 17885), (57, 17906), (100, 18107), (109, 18176), (110, 18179), (111, 18206), (112, 18212), (120, 18281), (131, 18362), (135, 18401), (186, 18773), (189, 18812), (192, 18842), (197, 18869), (198, 18884), (200, 18911), (201, 18917), (208, 19064), (219, 19142), (220, 19163), (222, 19178), (227, 19217), (230, 19241),

Gene: Triste_22 Start: 17337, Stop: 19313, Start Num: 7

Candidate Starts for Triste_22:

(Start: 7 @17337 has 38 MA's), (31, 17640), (37, 17718), (65, 17916), (100, 18081), (105, 18126), (112, 18186), (120, 18252), (131, 18333), (132, 18342), (135, 18372), (176, 18666), (186, 18744), (189, 18783), (192, 18813), (198, 18855), (200, 18882), (208, 19035), (219, 19113), (220, 19134), (222, 19149), (224, 19158), (227, 19188), (230, 19212),

Gene: Triumph_24 Start: 17260, Stop: 19452, Start Num: 4

Candidate Starts for Triumph_24:

(Start: 4 @17260 has 18 MA's), (10, 17359), (14, 17395), (15, 17413), (37, 17692), (38, 17695), (43, 17785), (53, 17875), (63, 17929), (95, 18193), (103, 18244), (114, 18346), (127, 18451), (141, 18556), (158, 18682), (161, 18715), (168, 18754), (172, 18775), (183, 18865), (188, 18922), (191, 18955), (193, 18961), (198, 19000), (200, 19027), (206, 19123), (207, 19141), (208, 19180), (210, 19192), (216, 19237), (219, 19258), (223, 19297), (226, 19330), (228, 19339), (236, 19438),

Gene: TrvxScott_21 Start: 17261, Stop: 19474, Start Num: 4

Candidate Starts for TrvxScott_21:

(Start: 4 @17261 has 18 MA's), (6, 17297), (15, 17414), (21, 17495), (22, 17507), (38, 17696), (44, 17789), (51, 17855), (55, 17897), (63, 17930), (73, 17996), (94, 18182), (95, 18194), (103, 18245), (104, 18248), (114, 18347), (137, 18533), (138, 18539), (139, 18548), (155, 18686), (163, 18752), (165, 18761), (183, 18884), (191, 18974), (194, 18983), (196, 18992), (198, 19019), (199, 19028), (206, 19142), (219, 19277), (229, 19367),

Gene: TuanPN_22 Start: 17343, Stop: 19334, Start Num: 7

Candidate Starts for TuanPN_22:

(Start: 7 @17343 has 38 MA's), (31, 17646), (37, 17724), (54, 17877), (57, 17898), (100, 18099), (120, 18273), (131, 18354), (135, 18393), (176, 18687), (186, 18765), (189, 18804), (192, 18834), (198, 18876), (200, 18903), (201, 18909), (207, 19017), (219, 19134), (220, 19155), (222, 19170), (224, 19179), (227, 19209), (230, 19233),

Gene: Vanseggelen_27 Start: 17719, Stop: 19728, Start Num: 11

Candidate Starts for Vanseggelen_27:

(Start: 11 @17719 has 6 MA's), (28, 17896), (41, 18058), (50, 18184), (74, 18316), (78, 18337), (79, 18343), (89, 18376), (100, 18469), (105, 18517), (110, 18544), (136, 18769), (140, 18808), (142, 18814), (144, 18841), (151, 18895), (164, 18991), (167, 19012), (173, 19036), (199, 19279), (211, 19471), (212, 19477), (221, 19558), (232, 19636),

Gene: Verse_22 Start: 18351, Stop: 20525, Start Num: 11

Candidate Starts for Verse_22:

(8, 18312), (Start: 11 @18351 has 6 MA's), (20, 18459), (24, 18501), (41, 18687), (46, 18777), (55, 18906), (68, 18984), (70, 19005), (71, 19008), (83, 19116), (85, 19131), (97, 19239), (101, 19263), (105, 19305), (110, 19332), (111, 19359), (126, 19482), (136, 19557), (140, 19596), (144, 19629), (151, 19683), (164, 19779), (199, 20067), (215, 20286), (221, 20349), (226, 20391), (231, 20430),

Gene: Werner_22 Start: 17347, Stop: 19323, Start Num: 7

Candidate Starts for Werner_22:

(Start: 7 @17347 has 38 MA's), (31, 17650), (37, 17728), (65, 17926), (100, 18091), (105, 18136), (112, 18196), (120, 18262), (131, 18343), (132, 18352), (135, 18382), (176, 18676), (177, 18679), (186, 18754), (189, 18793), (192, 18823), (198, 18865), (200, 18892), (208, 19045), (219, 19123), (220, 19144), (222, 19159), (224, 19168), (227, 19198), (230, 19222),

Gene: Whatever_22 Start: 17347, Stop: 19323, Start Num: 7

Candidate Starts for Whatever_22:

(Start: 7 @17347 has 38 MA's), (31, 17650), (37, 17728), (65, 17926), (100, 18091), (105, 18136), (112, 18196), (120, 18262), (131, 18343), (132, 18352), (135, 18382), (176, 18676), (186, 18754), (189, 18793), (192, 18823), (198, 18865), (200, 18892), (208, 19045), (219, 19123), (220, 19144), (222, 19159), (224, 19168), (227, 19198), (230, 19222),

Gene: Yasdnii_22 Start: 17339, Stop: 19330, Start Num: 7

Candidate Starts for Yasdnii_22:

(Start: 7 @17339 has 38 MA's), (31, 17642), (37, 17720), (54, 17873), (57, 17894), (74, 17942), (100, 18095), (120, 18269), (131, 18350), (135, 18389), (176, 18683), (186, 18761), (189, 18800), (192, 18830), (198, 18872), (200, 18899), (201, 18905), (207, 19013), (219, 19130), (220, 19151), (222, 19166), (224, 19175), (227, 19205), (230, 19229),

Gene: Yosif_23 Start: 18289, Stop: 20154, Start Num: 11

Candidate Starts for Yosif_23:

(Start: 11 @18289 has 6 MA's), (26, 18442), (34, 18550), (41, 18595), (42, 18607), (43, 18661), (75, 18826), (81, 18847), (97, 18949), (99, 18958), (100, 18967), (110, 19042), (129, 19126), (130, 19132), (136, 19180), (142, 19225), (144, 19252), (146, 19261), (151, 19306), (164, 19402), (171, 19444), (182, 19519), (185, 19567), (221, 19972), (228, 20023), (235, 20113),

Gene: Zainub_28 Start: 17696, Stop: 19903, Start Num: 4

Candidate Starts for Zainub_28:

(Start: 4 @17696 has 18 MA's), (6, 17732), (24, 17969), (43, 18221), (51, 18290), (62, 18362), (65, 18374), (87, 18542), (96, 18632), (114, 18782), (116, 18791), (137, 18968), (138, 18974), (155, 19121), (161, 19175), (163, 19187), (170, 19226), (191, 19409), (194, 19418), (198, 19454), (199, 19463), (206, 19577), (207, 19595), (213, 19673), (219, 19712),

Gene: Zemlya_23 Start: 17368, Stop: 19353, Start Num: 7

Candidate Starts for Zemlya_23:

(Start: 7 @17368 has 38 MA's), (18, 17524), (37, 17743), (54, 17896), (57, 17917), (100, 18118), (109, 18187), (111, 18217), (112, 18223), (120, 18292), (131, 18373), (135, 18412), (186, 18784), (188, 18817), (189, 18823), (192, 18853), (197, 18880), (198, 18895), (200, 18922), (201, 18928), (205, 19018), (208, 19075), (219, 19153), (222, 19189), (227, 19228), (230, 19252), (236, 19339),

Gene: phiCAM_23 Start: 20017, Stop: 21960, Start Num: 11

Candidate Starts for phiCAM_23:

(1, 19699), (2, 19702), (Start: 11 @20017 has 6 MA's), (24, 20167), (37, 20326), (59, 20536), (60, 20545), (64, 20560), (66, 20569), (88, 20659), (102, 20770), (117, 20860), (121, 20902), (132, 20968), (136, 20998), (140, 21037), (142, 21043), (144, 21070), (146, 21079), (151, 21124), (156, 21163), (164, 21220), (167, 21241), (182, 21337), (199, 21508), (204, 21598), (205, 21622), (211, 21700),

(221, 21790), (234, 21910), (235, 21919),