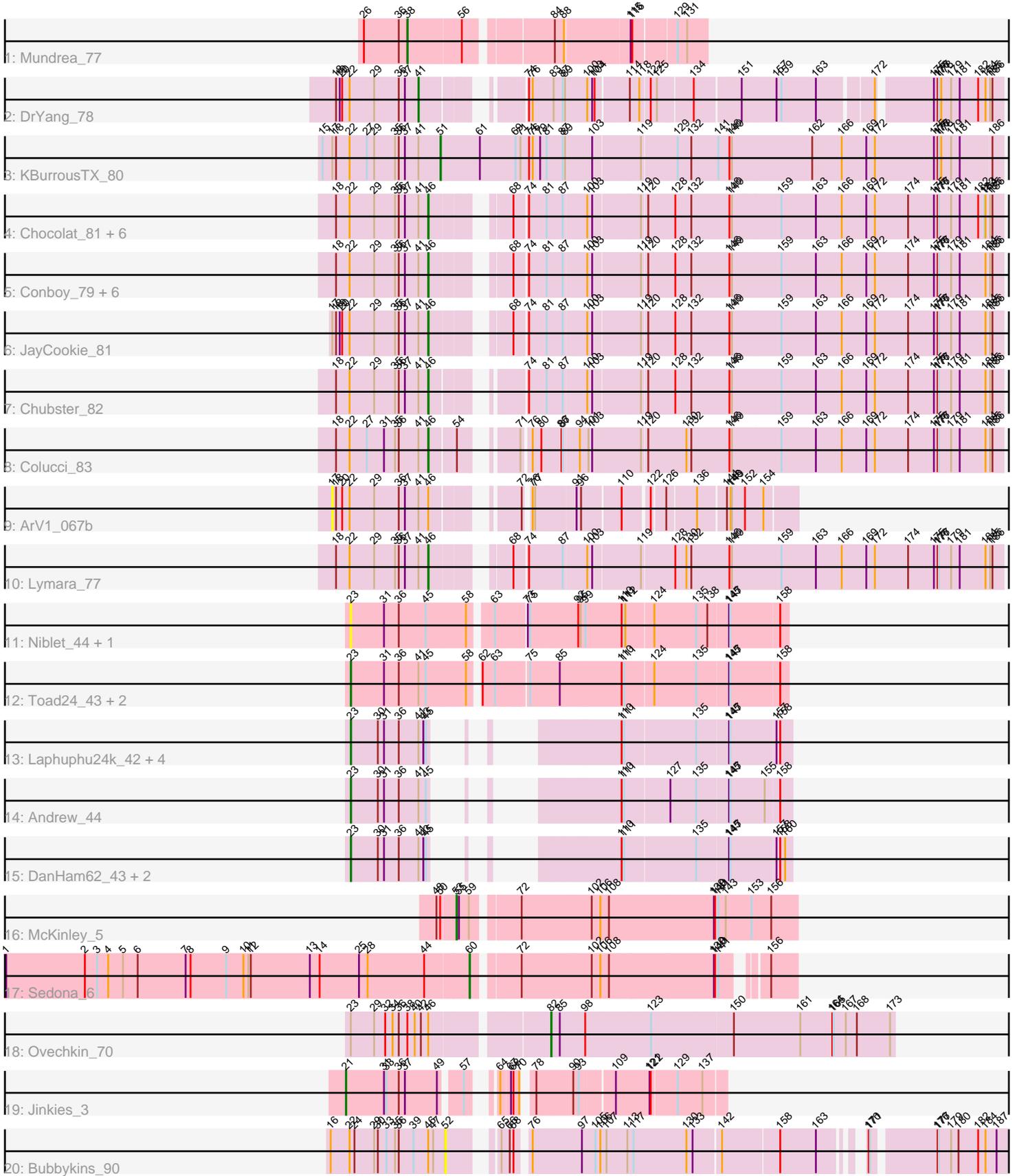


Pham 283966



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 283966 Report

This analysis was run 02/23/26 on database version 636.

Pham number 283966 has 41 members, 10 are drafts.

Phages represented in each track:

- Track 1 : Mundrea_77
- Track 2 : DrYang_78
- Track 3 : KBurroustX_80
- Track 4 : Chocolat_81, Scavito_82, Kabreeze_81, Chipper1996_820, Mordred_81, JaNo_80, Tophat_82
- Track 5 : Conboy_79, MoyaNatalis_80, HumptyDumpty_81, Linus_81, PrincessTrina_82, EdgarPoe_80, RosiePosie_81
- Track 6 : JayCookie_81
- Track 7 : Chubster_82
- Track 8 : Colucci_83
- Track 9 : ArV1_067b
- Track 10 : Lymara_77
- Track 11 : Niblet_44, Chicken_41
- Track 12 : Toad24_43, Zixiang_44, Shen_40
- Track 13 : Laphuphu24k_42, Oppalora_42, Fingolfin_43, Juno112_42, HamCheese_43
- Track 14 : Andrew_44
- Track 15 : DanHam62_43, AmiCi24_42, Atlantica_43
- Track 16 : McKinley_5
- Track 17 : Sedona_6
- Track 18 : Ovechkin_70
- Track 19 : Jinkies_3
- Track 20 : Bubbykins_90

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

The start number called the most often in the published annotations is 46, it was called in 17 of the 31 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Chipper1996_820, Chocolat_81, Chubster_82, Colucci_83, Conboy_79, EdgarPoe_80, HumptyDumpty_81, JaNo_80, JayCookie_81, Kabreeze_81, Linus_81, Lymara_77, Mordred_81, MoyaNatalis_80, PrincessTrina_82, RosiePosie_81, Scavito_82, Tophat_82,

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

- ArV1_067b, Bubbykins_90, Ovechkin_70,

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

- AmiCi24_42, Andrew_44, Atlantica_43, Chicken_41, DanHam62_43, DrYang_78, Fingolfin_43, HamCheese_43, Jinkies_3, Juno112_42, KBurrousTX_80, Laphuphu24k_42, McKinley_5, Mundrea_77, Niblet_44, Oppalora_42, Sedona_6, Shen_40, Toad24_43, Zixiang_44,

Summary by start number:

Start 17:

- Found in 3 of 41 (7.3%) of genes in pham
- No Manual Annotations of this start.
- Called 33.3% of time when present
- Phage (with cluster) where this start called: ArV1_067b (AR),

Start 21:

- Found in 1 of 41 (2.4%) of genes in pham
- Manual Annotations of this start: 1 of 31
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Jinkies_3 (FL),

Start 23:

- Found in 15 of 41 (36.6%) of genes in pham
- Manual Annotations of this start: 7 of 31
- Called 93.3% of time when present
- Phage (with cluster) where this start called: AmiCi24_42 (AS3), Andrew_44 (AS3), Atlantica_43 (AS3), Chicken_41 (AS1), DanHam62_43 (AS3), Fingolfin_43 (AS3), HamCheese_43 (AS3), Juno112_42 (AS3), Laphuphu24k_42 (AS3), Niblet_44 (AS1), Oppalora_42 (AS3), Shen_40 (AS1), Toad24_43 (AS1), Zixiang_44 (AS1),

Start 38:

- Found in 2 of 41 (4.9%) of genes in pham
- Manual Annotations of this start: 1 of 31
- Called 50.0% of time when present
- Phage (with cluster) where this start called: Mundrea_77 (A4),

Start 41:

- Found in 33 of 41 (80.5%) of genes in pham
- Manual Annotations of this start: 1 of 31
- Called 3.0% of time when present
- Phage (with cluster) where this start called: DrYang_78 (AR),

Start 46:

- Found in 21 of 41 (51.2%) of genes in pham
- Manual Annotations of this start: 17 of 31
- Called 85.7% of time when present
- Phage (with cluster) where this start called: Chipper1996_820 (AR), Chocolat_81 (AR), Chubster_82 (AR), Colucci_83 (AR), Conboy_79 (AR), EdgarPoe_80 (AR), HumptyDumpty_81 (AR), JaNo_80 (AR), JayCookie_81 (AR), Kabreeze_81 (AR), Linus_81 (AR), Lymara_77 (AR), Mordred_81 (AR), MoyaNatalis_80 (AR),

PrincessTrina_82 (AR), RosiePosie_81 (AR), Scavito_82 (AR), Tophat_82 (AR),

Start 51:

- Found in 1 of 41 (2.4%) of genes in pham
- Manual Annotations of this start: 1 of 31
- Called 100.0% of time when present
- Phage (with cluster) where this start called: KBurrousTX_80 (AR),

Start 52:

- Found in 1 of 41 (2.4%) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Bubbykins_90 (UNK),

Start 53:

- Found in 1 of 41 (2.4%) of genes in pham
- Manual Annotations of this start: 1 of 31
- Called 100.0% of time when present
- Phage (with cluster) where this start called: McKinley_5 (DE1),

Start 60:

- Found in 1 of 41 (2.4%) of genes in pham
- Manual Annotations of this start: 1 of 31
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Sedona_6 (DE1),

Start 82:

- Found in 1 of 41 (2.4%) of genes in pham
- Manual Annotations of this start: 1 of 31
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Ovechkin_70 (F1),

Summary by clusters:

There are 8 clusters represented in this pham: AS3, F1, AS1, DE1, AR, A4, UNK, FL,

Info for manual annotations of cluster A4:

- Start number 38 was manually annotated 1 time for cluster A4.

Info for manual annotations of cluster AR:

- Start number 41 was manually annotated 1 time for cluster AR.
- Start number 46 was manually annotated 17 times for cluster AR.
- Start number 51 was manually annotated 1 time for cluster AR.

Info for manual annotations of cluster AS1:

- Start number 23 was manually annotated 1 time for cluster AS1.

Info for manual annotations of cluster AS3:

- Start number 23 was manually annotated 6 times for cluster AS3.

Info for manual annotations of cluster DE1:

- Start number 53 was manually annotated 1 time for cluster DE1.
- Start number 60 was manually annotated 1 time for cluster DE1.

Info for manual annotations of cluster F1:

- Start number 82 was manually annotated 1 time for cluster F1.

Info for manual annotations of cluster FL:

- Start number 21 was manually annotated 1 time for cluster FL.

Gene Information:

Gene: AmiCi24_42 Start: 27168, Stop: 27965, Start Num: 23

Candidate Starts for AmiCi24_42:

(Start: 23 @27168 has 7 MA's), (30, 27234), (31, 27249), (36, 27285), (Start: 41 @27333 has 1 MA's), (43, 27345), (45, 27351), (110, 27567), (111, 27573), (135, 27741), (145, 27816), (147, 27819), (157, 27927), (158, 27936), (160, 27948),

Gene: Andrew_44 Start: 27053, Stop: 27850, Start Num: 23

Candidate Starts for Andrew_44:

(Start: 23 @27053 has 7 MA's), (30, 27119), (31, 27134), (36, 27170), (Start: 41 @27218 has 1 MA's), (45, 27236), (110, 27452), (111, 27458), (127, 27563), (135, 27626), (145, 27701), (147, 27704), (155, 27788), (158, 27821),

Gene: ArV1_067b Start: 51785, Stop: 52711, Start Num: 17

Candidate Starts for ArV1_067b:

(17, 51785), (18, 51794), (20, 51809), (22, 51827), (29, 51887), (36, 51944), (37, 51959), (Start: 41 @51992 has 1 MA's), (Start: 46 @52016 has 17 MA's), (72, 52154), (76, 52163), (77, 52169), (91, 52256), (96, 52265), (110, 52352), (122, 52400), (126, 52424), (136, 52484), (144, 52547), (148, 52556), (149, 52559), (152, 52589), (154, 52634),

Gene: Atlantica_43 Start: 27170, Stop: 27967, Start Num: 23

Candidate Starts for Atlantica_43:

(Start: 23 @27170 has 7 MA's), (30, 27236), (31, 27251), (36, 27287), (Start: 41 @27335 has 1 MA's), (43, 27347), (45, 27353), (110, 27569), (111, 27575), (135, 27743), (145, 27818), (147, 27821), (157, 27929), (158, 27938), (160, 27950),

Gene: Bubbykins_90 Start: 55572, Stop: 56735, Start Num: 52

Candidate Starts for Bubbykins_90:

(16, 55296), (22, 55341), (24, 55353), (29, 55401), (30, 55407), (33, 55428), (35, 55449), (36, 55458), (39, 55494), (Start: 46 @55530 has 17 MA's), (47, 55542), (52, 55572), (65, 55647), (66, 55665), (68, 55674), (76, 55692), (97, 55803), (105, 55836), (106, 55848), (107, 55863), (113, 55914), (117, 55929), (130, 56058), (133, 56073), (142, 56133), (158, 56262), (163, 56349), (170, 56418), (171, 56421), (176, 56559), (177, 56562), (179, 56592), (180, 56610), (182, 56658), (184, 56676), (187, 56703),

Gene: Chicken_41 Start: 27850, Stop: 28848, Start Num: 23

Candidate Starts for Chicken_41:

(Start: 23 @27850 has 7 MA's), (31, 27931), (36, 27967), (45, 28033), (58, 28126), (63, 28174), (73, 28240), (75, 28246), (92, 28354), (95, 28360), (99, 28372), (110, 28459), (111, 28465), (112, 28468), (124, 28531), (135, 28633), (138, 28660), (145, 28708), (147, 28711), (158, 28828),

Gene: Chipper1996_820 Start: 52852, Stop: 54129, Start Num: 46

Candidate Starts for Chipper1996_820:

(18, 52630), (22, 52663), (29, 52723), (35, 52771), (36, 52780), (37, 52795), (Start: 41 @52828 has 1 MA's), (Start: 46 @52852 has 17 MA's), (68, 52990), (74, 53014), (81, 53053), (87, 53086), (100, 53137), (103, 53149), (119, 53260), (120, 53272), (128, 53338), (132, 53377), (146, 53470), (149, 53476), (159, 53593), (163, 53677), (166, 53740), (169, 53800), (172, 53821), (174, 53902), (175, 53965), (176, 53974), (177, 53977), (179, 54007), (181, 54028), (182, 54073), (183, 54088), (184, 54091), (185, 54097), (186, 54103),

Gene: Chocolat_81 Start: 52559, Stop: 53836, Start Num: 46

Candidate Starts for Chocolat_81:

(18, 52337), (22, 52370), (29, 52430), (35, 52478), (36, 52487), (37, 52502), (Start: 41 @52535 has 1 MA's), (Start: 46 @52559 has 17 MA's), (68, 52697), (74, 52721), (81, 52760), (87, 52793), (100, 52844), (103, 52856), (119, 52967), (120, 52979), (128, 53045), (132, 53084), (146, 53177), (149, 53183), (159, 53300), (163, 53384), (166, 53447), (169, 53507), (172, 53528), (174, 53609), (175, 53672), (176, 53681), (177, 53684), (179, 53714), (181, 53735), (182, 53780), (183, 53795), (184, 53798), (185, 53804), (186, 53810),

Gene: Chubster_82 Start: 53253, Stop: 54518, Start Num: 46

Candidate Starts for Chubster_82:

(18, 53031), (22, 53064), (29, 53124), (35, 53172), (36, 53181), (37, 53196), (Start: 41 @53229 has 1 MA's), (Start: 46 @53253 has 17 MA's), (74, 53403), (81, 53442), (87, 53475), (100, 53526), (103, 53538), (119, 53649), (120, 53661), (128, 53727), (132, 53766), (146, 53859), (149, 53865), (159, 53982), (163, 54066), (166, 54129), (169, 54189), (172, 54210), (174, 54291), (175, 54354), (176, 54363), (177, 54366), (179, 54396), (181, 54417), (184, 54480), (185, 54486), (186, 54492),

Gene: Colucci_83 Start: 53289, Stop: 54554, Start Num: 46

Candidate Starts for Colucci_83:

(18, 53067), (22, 53100), (27, 53142), (31, 53181), (35, 53208), (36, 53217), (Start: 41 @53265 has 1 MA's), (Start: 46 @53289 has 17 MA's), (54, 53346), (71, 53427), (76, 53445), (80, 53466), (86, 53505), (87, 53508), (94, 53541), (101, 53562), (103, 53571), (119, 53685), (120, 53697), (130, 53790), (132, 53802), (146, 53895), (149, 53901), (159, 54018), (163, 54102), (166, 54165), (169, 54225), (172, 54246), (174, 54327), (175, 54390), (176, 54399), (177, 54402), (179, 54432), (181, 54453), (184, 54516), (185, 54522), (186, 54528),

Gene: Conboy_79 Start: 52341, Stop: 53618, Start Num: 46

Candidate Starts for Conboy_79:

(18, 52119), (22, 52152), (29, 52212), (35, 52260), (36, 52269), (37, 52284), (Start: 41 @52317 has 1 MA's), (Start: 46 @52341 has 17 MA's), (68, 52479), (74, 52503), (81, 52542), (87, 52575), (100, 52626), (103, 52638), (119, 52749), (120, 52761), (128, 52827), (132, 52866), (146, 52959), (149, 52965), (159, 53082), (163, 53166), (166, 53229), (169, 53289), (172, 53310), (174, 53391), (175, 53454), (176, 53463), (177, 53466), (179, 53496), (181, 53517), (184, 53580), (185, 53586), (186, 53592),

Gene: DanHam62_43 Start: 27169, Stop: 27966, Start Num: 23

Candidate Starts for DanHam62_43:

(Start: 23 @27169 has 7 MA's), (30, 27235), (31, 27250), (36, 27286), (Start: 41 @27334 has 1 MA's), (43, 27346), (45, 27352), (110, 27568), (111, 27574), (135, 27742), (145, 27817), (147, 27820), (157, 27928), (158, 27937), (160, 27949),

Gene: DrYang_78 Start: 53011, Stop: 54216, Start Num: 41

Candidate Starts for DrYang_78:

(18, 52813), (19, 52822), (20, 52828), (22, 52846), (29, 52906), (36, 52963), (37, 52978), (Start: 41 @53011 has 1 MA's), (74, 53182), (76, 53191), (83, 53236), (87, 53254), (89, 53260), (100, 53305),

(103, 53317), (104, 53323), (114, 53395), (118, 53413), (122, 53434), (125, 53449), (134, 53527), (151, 53632), (157, 53713), (159, 53725), (163, 53809), (172, 53932), (175, 54052), (176, 54061), (177, 54064), (178, 54070), (179, 54094), (181, 54115), (182, 54160), (184, 54178), (185, 54184), (186, 54190),

Gene: EdgarPoe_80 Start: 52716, Stop: 53993, Start Num: 46

Candidate Starts for EdgarPoe_80:

(18, 52494), (22, 52527), (29, 52587), (35, 52635), (36, 52644), (37, 52659), (Start: 41 @52692 has 1 MA's), (Start: 46 @52716 has 17 MA's), (68, 52854), (74, 52878), (81, 52917), (87, 52950), (100, 53001), (103, 53013), (119, 53124), (120, 53136), (128, 53202), (132, 53241), (146, 53334), (149, 53340), (159, 53457), (163, 53541), (166, 53604), (169, 53664), (172, 53685), (174, 53766), (175, 53829), (176, 53838), (177, 53841), (179, 53871), (181, 53892), (184, 53955), (185, 53961), (186, 53967),

Gene: Fingolfin_43 Start: 27172, Stop: 27969, Start Num: 23

Candidate Starts for Fingolfin_43:

(Start: 23 @27172 has 7 MA's), (30, 27238), (31, 27253), (36, 27289), (Start: 41 @27337 has 1 MA's), (43, 27349), (45, 27355), (110, 27571), (111, 27577), (135, 27745), (145, 27820), (147, 27823), (157, 27931), (158, 27940),

Gene: HamCheese_43 Start: 27156, Stop: 27953, Start Num: 23

Candidate Starts for HamCheese_43:

(Start: 23 @27156 has 7 MA's), (30, 27222), (31, 27237), (36, 27273), (Start: 41 @27321 has 1 MA's), (43, 27333), (45, 27339), (110, 27555), (111, 27561), (135, 27729), (145, 27804), (147, 27807), (157, 27915), (158, 27924),

Gene: HumptyDumpty_81 Start: 52519, Stop: 53796, Start Num: 46

Candidate Starts for HumptyDumpty_81:

(18, 52297), (22, 52330), (29, 52390), (35, 52438), (36, 52447), (37, 52462), (Start: 41 @52495 has 1 MA's), (Start: 46 @52519 has 17 MA's), (68, 52657), (74, 52681), (81, 52720), (87, 52753), (100, 52804), (103, 52816), (119, 52927), (120, 52939), (128, 53005), (132, 53044), (146, 53137), (149, 53143), (159, 53260), (163, 53344), (166, 53407), (169, 53467), (172, 53488), (174, 53569), (175, 53632), (176, 53641), (177, 53644), (179, 53674), (181, 53695), (184, 53758), (185, 53764), (186, 53770),

Gene: JaNo_80 Start: 52490, Stop: 53767, Start Num: 46

Candidate Starts for JaNo_80:

(18, 52268), (22, 52301), (29, 52361), (35, 52409), (36, 52418), (37, 52433), (Start: 41 @52466 has 1 MA's), (Start: 46 @52490 has 17 MA's), (68, 52628), (74, 52652), (81, 52691), (87, 52724), (100, 52775), (103, 52787), (119, 52898), (120, 52910), (128, 52976), (132, 53015), (146, 53108), (149, 53114), (159, 53231), (163, 53315), (166, 53378), (169, 53438), (172, 53459), (174, 53540), (175, 53603), (176, 53612), (177, 53615), (179, 53645), (181, 53666), (182, 53711), (183, 53726), (184, 53729), (185, 53735), (186, 53741),

Gene: JayCookie_81 Start: 53052, Stop: 54329, Start Num: 46

Candidate Starts for JayCookie_81:

(17, 52821), (18, 52830), (19, 52839), (20, 52845), (22, 52863), (29, 52923), (35, 52971), (36, 52980), (37, 52995), (Start: 41 @53028 has 1 MA's), (Start: 46 @53052 has 17 MA's), (68, 53190), (74, 53214), (81, 53253), (87, 53286), (100, 53337), (103, 53349), (119, 53460), (120, 53472), (128, 53538), (132, 53577), (146, 53670), (149, 53676), (159, 53793), (163, 53877), (166, 53940), (169, 54000), (172, 54021), (174, 54102), (175, 54165), (176, 54174), (177, 54177), (179, 54207), (181, 54228), (184, 54291), (185, 54297), (186, 54303),

Gene: Jinkies_3 Start: 2349, Stop: 3125, Start Num: 21

Candidate Starts for Jinkies_3:

(Start: 21 @2349 has 1 MA's), (31, 2442), (33, 2448), (36, 2478), (37, 2493), (49, 2571), (57, 2616), (64, 2649), (67, 2670), (68, 2676), (70, 2685), (78, 2700), (90, 2784), (93, 2793), (109, 2871), (121, 2952), (122, 2955), (129, 3015), (137, 3072),

Gene: Juno112_42 Start: 27172, Stop: 27969, Start Num: 23

Candidate Starts for Juno112_42:

(Start: 23 @27172 has 7 MA's), (30, 27238), (31, 27253), (36, 27289), (Start: 41 @27337 has 1 MA's), (43, 27349), (45, 27355), (110, 27571), (111, 27577), (135, 27745), (145, 27820), (147, 27823), (157, 27931), (158, 27940),

Gene: KBurrousTX_80 Start: 54664, Stop: 55992, Start Num: 51

Candidate Starts for KBurrousTX_80:

(15, 54379), (17, 54403), (18, 54412), (22, 54445), (27, 54487), (29, 54505), (35, 54553), (36, 54562), (37, 54577), (Start: 41 @54610 has 1 MA's), (Start: 51 @54664 has 1 MA's), (61, 54760), (69, 54847), (71, 54859), (74, 54880), (76, 54889), (79, 54907), (81, 54919), (87, 54952), (89, 54958), (103, 55015), (119, 55126), (129, 55210), (132, 55243), (141, 55309), (146, 55336), (149, 55342), (162, 55534), (166, 55606), (169, 55666), (172, 55687), (175, 55828), (176, 55837), (177, 55840), (178, 55846), (179, 55870), (181, 55891), (186, 55966),

Gene: Kabreeze_81 Start: 52576, Stop: 53853, Start Num: 46

Candidate Starts for Kabreeze_81:

(18, 52354), (22, 52387), (29, 52447), (35, 52495), (36, 52504), (37, 52519), (Start: 41 @52552 has 1 MA's), (Start: 46 @52576 has 17 MA's), (68, 52714), (74, 52738), (81, 52777), (87, 52810), (100, 52861), (103, 52873), (119, 52984), (120, 52996), (128, 53062), (132, 53101), (146, 53194), (149, 53200), (159, 53317), (163, 53401), (166, 53464), (169, 53524), (172, 53545), (174, 53626), (175, 53689), (176, 53698), (177, 53701), (179, 53731), (181, 53752), (182, 53797), (183, 53812), (184, 53815), (185, 53821), (186, 53827),

Gene: Laphuphu24k_42 Start: 27156, Stop: 27953, Start Num: 23

Candidate Starts for Laphuphu24k_42:

(Start: 23 @27156 has 7 MA's), (30, 27222), (31, 27237), (36, 27273), (Start: 41 @27321 has 1 MA's), (43, 27333), (45, 27339), (110, 27555), (111, 27561), (135, 27729), (145, 27804), (147, 27807), (157, 27915), (158, 27924),

Gene: Linus_81 Start: 53024, Stop: 54301, Start Num: 46

Candidate Starts for Linus_81:

(18, 52802), (22, 52835), (29, 52895), (35, 52943), (36, 52952), (37, 52967), (Start: 41 @53000 has 1 MA's), (Start: 46 @53024 has 17 MA's), (68, 53162), (74, 53186), (81, 53225), (87, 53258), (100, 53309), (103, 53321), (119, 53432), (120, 53444), (128, 53510), (132, 53549), (146, 53642), (149, 53648), (159, 53765), (163, 53849), (166, 53912), (169, 53972), (172, 53993), (174, 54074), (175, 54137), (176, 54146), (177, 54149), (179, 54179), (181, 54200), (184, 54263), (185, 54269), (186, 54275),

Gene: Lymara_77 Start: 51381, Stop: 52658, Start Num: 46

Candidate Starts for Lymara_77:

(18, 51159), (22, 51192), (29, 51252), (35, 51300), (36, 51309), (37, 51324), (Start: 41 @51357 has 1 MA's), (Start: 46 @51381 has 17 MA's), (68, 51519), (74, 51543), (87, 51615), (100, 51666), (103, 51678), (119, 51789), (128, 51867), (130, 51894), (132, 51906), (146, 51999), (149, 52005), (159, 52122), (163, 52206), (166, 52269), (169, 52329), (172, 52350), (174, 52431), (175, 52494), (176, 52503), (177, 52506), (179, 52536), (181, 52557), (184, 52620), (185, 52626), (186, 52632),

Gene: McKinley_5 Start: 3198, Stop: 3983, Start Num: 53

Candidate Starts for McKinley_5:

(48, 3156), (50, 3165), (Start: 53 @3198 has 1 MA's), (55, 3204), (59, 3228), (72, 3327), (102, 3495), (106, 3516), (108, 3537), (139, 3786), (140, 3789), (141, 3792), (143, 3810), (153, 3873), (156, 3921),

Gene: Mordred_81 Start: 52615, Stop: 53892, Start Num: 46

Candidate Starts for Mordred_81:

(18, 52393), (22, 52426), (29, 52486), (35, 52534), (36, 52543), (37, 52558), (Start: 41 @52591 has 1 MA's), (Start: 46 @52615 has 17 MA's), (68, 52753), (74, 52777), (81, 52816), (87, 52849), (100, 52900), (103, 52912), (119, 53023), (120, 53035), (128, 53101), (132, 53140), (146, 53233), (149, 53239), (159, 53356), (163, 53440), (166, 53503), (169, 53563), (172, 53584), (174, 53665), (175, 53728), (176, 53737), (177, 53740), (179, 53770), (181, 53791), (182, 53836), (183, 53851), (184, 53854), (185, 53860), (186, 53866),

Gene: MoyaNatalis_80 Start: 52498, Stop: 53775, Start Num: 46

Candidate Starts for MoyaNatalis_80:

(18, 52276), (22, 52309), (29, 52369), (35, 52417), (36, 52426), (37, 52441), (Start: 41 @52474 has 1 MA's), (Start: 46 @52498 has 17 MA's), (68, 52636), (74, 52660), (81, 52699), (87, 52732), (100, 52783), (103, 52795), (119, 52906), (120, 52918), (128, 52984), (132, 53023), (146, 53116), (149, 53122), (159, 53239), (163, 53323), (166, 53386), (169, 53446), (172, 53467), (174, 53548), (175, 53611), (176, 53620), (177, 53623), (179, 53653), (181, 53674), (184, 53737), (185, 53743), (186, 53749),

Gene: Mundrea_77 Start: 46850, Stop: 46224, Start Num: 38

Candidate Starts for Mundrea_77:

(26, 46949), (36, 46871), (Start: 38 @46850 has 1 MA's), (56, 46730), (84, 46547), (88, 46526), (115, 46382), (116, 46379), (129, 46292), (131, 46271),

Gene: Niblet_44 Start: 27937, Stop: 28935, Start Num: 23

Candidate Starts for Niblet_44:

(Start: 23 @27937 has 7 MA's), (31, 28018), (36, 28054), (45, 28120), (58, 28213), (63, 28261), (73, 28327), (75, 28333), (92, 28441), (95, 28447), (99, 28459), (110, 28546), (111, 28552), (112, 28555), (124, 28618), (135, 28720), (138, 28747), (145, 28795), (147, 28798), (158, 28915),

Gene: Oppalora_42 Start: 27170, Stop: 27967, Start Num: 23

Candidate Starts for Oppalora_42:

(Start: 23 @27170 has 7 MA's), (30, 27236), (31, 27251), (36, 27287), (Start: 41 @27335 has 1 MA's), (43, 27347), (45, 27353), (110, 27569), (111, 27575), (135, 27743), (145, 27818), (147, 27821), (157, 27929), (158, 27938),

Gene: Ovechkin_70 Start: 44498, Stop: 45319, Start Num: 82

Candidate Starts for Ovechkin_70:

(Start: 23 @44057 has 7 MA's), (29, 44114), (32, 44138), (34, 44156), (36, 44171), (Start: 38 @44192 has 1 MA's), (40, 44210), (42, 44225), (Start: 46 @44243 has 17 MA's), (Start: 82 @44498 has 1 MA's), (85, 44519), (98, 44579), (123, 44735), (150, 44927), (161, 45089), (164, 45167), (165, 45170), (167, 45200), (168, 45227), (173, 45308),

Gene: PrincessTrina_82 Start: 52920, Stop: 54197, Start Num: 46

Candidate Starts for PrincessTrina_82:

(18, 52698), (22, 52731), (29, 52791), (35, 52839), (36, 52848), (37, 52863), (Start: 41 @52896 has 1 MA's), (Start: 46 @52920 has 17 MA's), (68, 53058), (74, 53082), (81, 53121), (87, 53154), (100, 53205), (103, 53217), (119, 53328), (120, 53340), (128, 53406), (132, 53445), (146, 53538), (149, 53544), (159, 53661), (163, 53745), (166, 53808), (169, 53868), (172, 53889), (174, 53970), (175,

54033), (176, 54042), (177, 54045), (179, 54075), (181, 54096), (184, 54159), (185, 54165), (186, 54171),

Gene: RosiePosie_81 Start: 52704, Stop: 53981, Start Num: 46

Candidate Starts for RosiePosie_81:

(18, 52482), (22, 52515), (29, 52575), (35, 52623), (36, 52632), (37, 52647), (Start: 41 @52680 has 1 MA's), (Start: 46 @52704 has 17 MA's), (68, 52842), (74, 52866), (81, 52905), (87, 52938), (100, 52989), (103, 53001), (119, 53112), (120, 53124), (128, 53190), (132, 53229), (146, 53322), (149, 53328), (159, 53445), (163, 53529), (166, 53592), (169, 53652), (172, 53673), (174, 53754), (175, 53817), (176, 53826), (177, 53829), (179, 53859), (181, 53880), (184, 53943), (185, 53949), (186, 53955),

Gene: Scavito_82 Start: 52664, Stop: 53941, Start Num: 46

Candidate Starts for Scavito_82:

(18, 52442), (22, 52475), (29, 52535), (35, 52583), (36, 52592), (37, 52607), (Start: 41 @52640 has 1 MA's), (Start: 46 @52664 has 17 MA's), (68, 52802), (74, 52826), (81, 52865), (87, 52898), (100, 52949), (103, 52961), (119, 53072), (120, 53084), (128, 53150), (132, 53189), (146, 53282), (149, 53288), (159, 53405), (163, 53489), (166, 53552), (169, 53612), (172, 53633), (174, 53714), (175, 53777), (176, 53786), (177, 53789), (179, 53819), (181, 53840), (182, 53885), (183, 53900), (184, 53903), (185, 53909), (186, 53915),

Gene: Sedona_6 Start: 4350, Stop: 5051, Start Num: 60

Candidate Starts for Sedona_6:

(1, 3228), (2, 3420), (3, 3450), (4, 3477), (5, 3513), (6, 3549), (7, 3666), (8, 3678), (9, 3765), (10, 3807), (11, 3819), (12, 3825), (13, 3969), (14, 3993), (25, 4089), (28, 4110), (44, 4245), (Start: 60 @4350 has 1 MA's), (72, 4446), (102, 4614), (106, 4635), (108, 4656), (139, 4905), (140, 4908), (141, 4911), (156, 4989),

Gene: Shen_40 Start: 26463, Stop: 27461, Start Num: 23

Candidate Starts for Shen_40:

(Start: 23 @26463 has 7 MA's), (31, 26544), (36, 26580), (Start: 41 @26628 has 1 MA's), (45, 26646), (58, 26739), (62, 26757), (63, 26787), (75, 26859), (85, 26925), (110, 27072), (111, 27078), (124, 27144), (135, 27246), (145, 27321), (147, 27324), (158, 27441),

Gene: Toad24_43 Start: 28602, Stop: 29600, Start Num: 23

Candidate Starts for Toad24_43:

(Start: 23 @28602 has 7 MA's), (31, 28683), (36, 28719), (Start: 41 @28767 has 1 MA's), (45, 28785), (58, 28878), (62, 28896), (63, 28926), (75, 28998), (85, 29064), (110, 29211), (111, 29217), (124, 29283), (135, 29385), (145, 29460), (147, 29463), (158, 29580),

Gene: Tophat_82 Start: 52853, Stop: 54130, Start Num: 46

Candidate Starts for Tophat_82:

(18, 52631), (22, 52664), (29, 52724), (35, 52772), (36, 52781), (37, 52796), (Start: 41 @52829 has 1 MA's), (Start: 46 @52853 has 17 MA's), (68, 52991), (74, 53015), (81, 53054), (87, 53087), (100, 53138), (103, 53150), (119, 53261), (120, 53273), (128, 53339), (132, 53378), (146, 53471), (149, 53477), (159, 53594), (163, 53678), (166, 53741), (169, 53801), (172, 53822), (174, 53903), (175, 53966), (176, 53975), (177, 53978), (179, 54008), (181, 54029), (182, 54074), (183, 54089), (184, 54092), (185, 54098), (186, 54104),

Gene: Zixiang_44 Start: 27967, Stop: 28965, Start Num: 23

Candidate Starts for Zixiang_44:

(Start: 23 @27967 has 7 MA's), (31, 28048), (36, 28084), (Start: 41 @28132 has 1 MA's), (45, 28150), (58, 28243), (62, 28261), (63, 28291), (75, 28363), (85, 28429), (110, 28576), (111, 28582), (124,

28648), (135, 28750), (145, 28825), (147, 28828), (158, 28945),