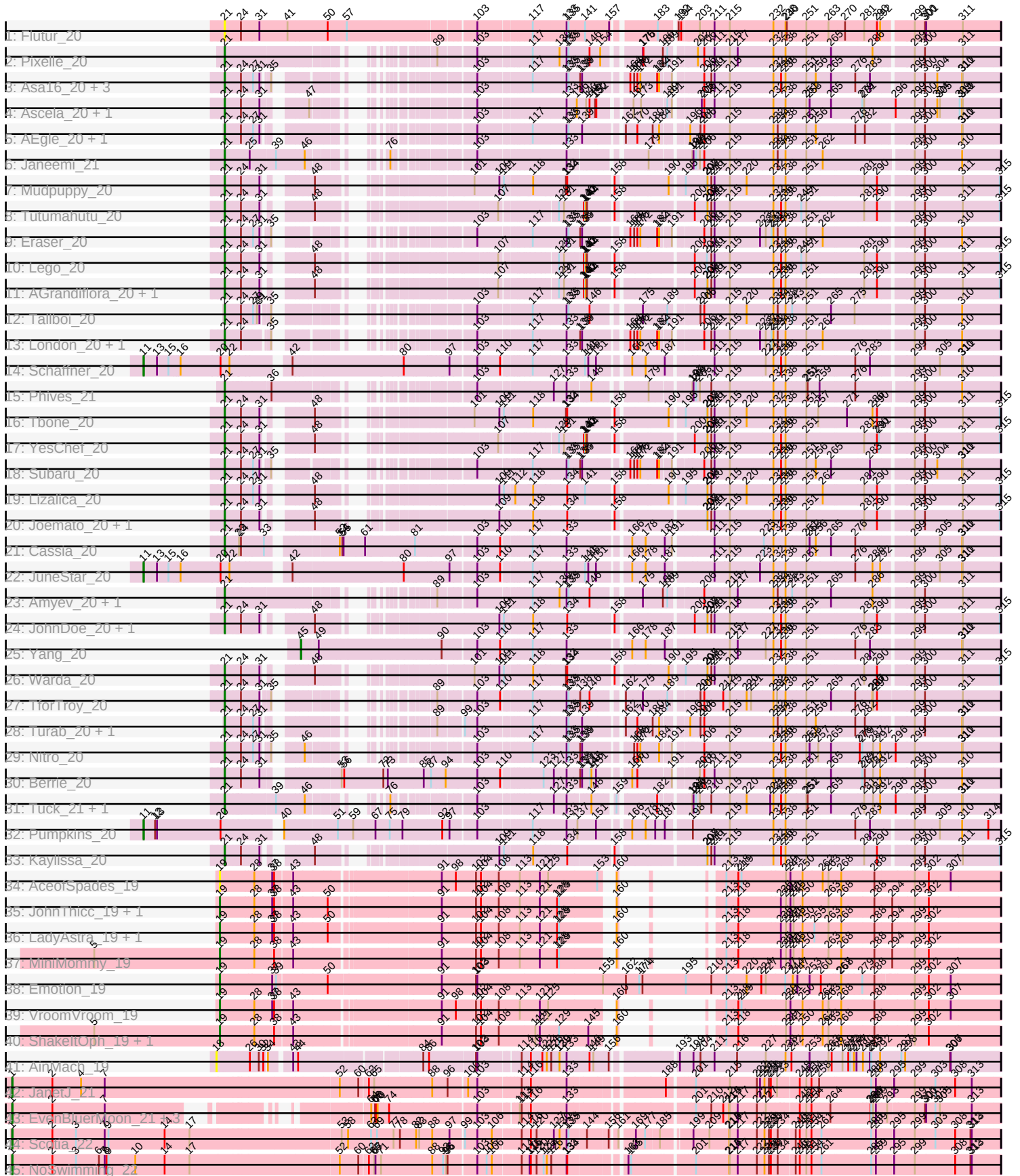




Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. If this default region is judged to be packed too tightly 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 329034 Report

This analysis was run 09/05/26 on database version 662.

Pham number 329034 has 63 members, 12 are drafts.

Phages represented in each track:

- Track 1 : Flutur\_20
- Track 2 : Pixelle\_20
- Track 3 : Asa16\_20, Skelbel\_21, Jstan\_21, Niobe\_20
- Track 4 : Ascela\_20, Iter\_20
- Track 5 : AEgle\_20, Amploria\_20
- Track 6 : Janeemi\_21
- Track 7 : Mudpuppy\_20
- Track 8 : Tutumahutu\_20
- Track 9 : Eraser\_20
- Track 10 : Lego\_20
- Track 11 : AGrandiflora\_20, Powerpuff\_20
- Track 12 : Tallboi\_20
- Track 13 : London\_20, Elezi\_20
- Track 14 : Schaffner\_20
- Track 15 : Phives\_21
- Track 16 : Tbone\_20
- Track 17 : YesChef\_20
- Track 18 : Subaru\_20
- Track 19 : Lizalica\_20
- Track 20 : Joemato\_20, Simpson\_22
- Track 21 : Cassia\_20
- Track 22 : JuneStar\_20
- Track 23 : Amyev\_20, Tian\_20
- Track 24 : JohnDoe\_20, Cyan\_20
- Track 25 : Yang\_20
- Track 26 : Warda\_20
- Track 27 : TforTroy\_20
- Track 28 : Turab\_20, Adumb2043\_20
- Track 29 : Nitro\_20
- Track 30 : Berrie\_20
- Track 31 : Tuck\_21, Community\_20
- Track 32 : Pumpkins\_20
- Track 33 : Kaylissa\_20
- Track 34 : AceofSpades\_19
- Track 35 : JohnThicc\_19, FiveHead\_21
- Track 36 : LadyAstra\_19, Origami\_19
- Track 37 : MiniMommy\_19

- Track 38 : Emotion\_19
- Track 39 : VroomVroom\_19
- Track 40 : ShakeltOph\_19, JasmineDragon\_19
- Track 41 : AinMach\_19
- Track 42 : JanetJ\_21
- Track 43 : EvenBluerMoon\_21, Aoka\_21, Morrey\_32, PrairieDogTown\_21
- Track 44 : Scotia\_22
- Track 45 : NoSwimming\_22

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

The start number called the most often in the published annotations is 21, it was called in 33 of the 51 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

• AEgle\_20, AGrandiflora\_20, Adumb2043\_20, Amploria\_20, Amyev\_20, Asa16\_20, Ascela\_20, Berrie\_20, Cassia\_20, Community\_20, Cyan\_20, Elezi\_20, Eraser\_20, Flutur\_20, Iter\_20, Janeemi\_21, Joemato\_20, JohnDoe\_20, Jstan\_21, Kaylissa\_20, Lego\_20, Lizalica\_20, London\_20, Mudpuppy\_20, Niobe\_20, Nitro\_20, Phives\_21, Pixelle\_20, Powerpuff\_20, Simpson\_22, Skelbel\_21, Subaru\_20, Tallboi\_20, Tbone\_20, TforTroy\_20, Tian\_20, Tuck\_21, Turab\_20, Tutumahutu\_20, Warda\_20, YesChef\_20,

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

•

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

• AceofSpades\_19, AinMach\_19, Aoka\_21, Emotion\_19, EvenBluerMoon\_21, FiveHead\_21, JanetJ\_21, JasmineDragon\_19, JohnThicc\_19, JuneStar\_20, LadyAstra\_19, MiniMommy\_19, Morrey\_32, NoSwimming\_22, Origami\_19, PrairieDogTown\_21, Pumpkins\_20, Schaffner\_20, Scotia\_22, ShakeltOph\_19, VroomVroom\_19, Yang\_20,

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

Start 1:

- Found in 7 of 63 ( 11.1% ) of genes in pham
- Manual Annotations of this start: 6 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Aoka\_21 (FO), EvenBluerMoon\_21 (FO), JanetJ\_21 (FO), Morrey\_32 (FO), NoSwimming\_22 (FO), PrairieDogTown\_21 (FO), Scotia\_22 (FO),

Start 11:

- Found in 3 of 63 ( 4.8% ) of genes in pham
- Manual Annotations of this start: 3 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: JuneStar\_20 (AZ1), Pumpkins\_20 (AZ1), Schaffner\_20 (AZ1),

#### Start 18:

- Found in 1 of 63 ( 1.6% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AinMach\_19 (AZ7),

#### Start 19:

- Found in 10 of 63 ( 15.9% ) of genes in pham
- Manual Annotations of this start: 8 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AceofSpades\_19 (AZ4), Emotion\_19 (AZ4), FiveHead\_21 (AZ4), JasmineDragon\_19 (AZ4), JohnThicc\_19 (AZ4), LadyAstra\_19 (AZ4), MiniMommy\_19 (AZ4), Origami\_19 (AZ4), ShakeItOph\_19 (AZ4), VroomVroom\_19 (AZ4),

#### Start 21:

- Found in 41 of 63 ( 65.1% ) of genes in pham
- Manual Annotations of this start: 33 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: AEgle\_20 (AZ1), AGrandiflora\_20 (AZ1), Adumb2043\_20 (AZ1), Amploria\_20 (AZ1), Amyev\_20 (AZ1), Asa16\_20 (AZ1), Ascela\_20 (AZ1), Berrie\_20 (AZ1), Cassia\_20 (AZ1), Community\_20 (AZ1), Cyan\_20 (AZ1), Elezi\_20 (AZ1), Eraser\_20 (AZ1), Flutur\_20 (AZ1), Iter\_20 (AZ1), Janeemi\_21 (AZ1), Joemato\_20 (AZ1), JohnDoe\_20 (AZ1), Jstan\_21 (AZ1), Kaylissa\_20 (AZ1), Lego\_20 (AZ1), Lizalica\_20 (AZ1), London\_20 (AZ1), Mudpuppy\_20 (AZ1), Niobe\_20 (AZ1), Nitro\_20 (AZ1), Phives\_21 (AZ1), Pixelle\_20 (AZ1), Powerpuff\_20 (AZ1), Simpson\_22 (AZ1), Skelbel\_21 (AZ1), Subaru\_20 (AZ1), Tallboi\_20 (AZ1), Tbone\_20 (AZ1), TforTroy\_20 (AZ1), Tian\_20 (AZ1), Tuck\_21 (AZ1), Turab\_20 (AZ1), Tutumahutu\_20 (AZ1), Warda\_20 (AZ1), YesChef\_20 (AZ1),

#### Start 45:

- Found in 1 of 63 ( 1.6% ) of genes in pham
- Manual Annotations of this start: 1 of 51
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Yang\_20 (AZ1),

### Summary by clusters:

There are 5 clusters represented in this pham: AZ1, AZ7, AZ4, AZ, FO,

#### Info for manual annotations of cluster AZ1:

- Start number 11 was manually annotated 3 times for cluster AZ1.
- Start number 21 was manually annotated 33 times for cluster AZ1.
- Start number 45 was manually annotated 1 time for cluster AZ1.

#### Info for manual annotations of cluster AZ4:

- Start number 19 was manually annotated 8 times for cluster AZ4.

#### Info for manual annotations of cluster FO:

- Start number 1 was manually annotated 6 times for cluster FO.

**Gene Information:**

Gene: AEgle\_20 Start: 16059, Stop: 18917, Start Num: 21

Candidate Starts for AEgle\_20:

(Start: 21 @16059 has 33 MA's), (24, 16122), (27, 16176), (31, 16206), (103, 16749), (117, 16968), (133, 17115), (135, 17124), (139, 17184), (162, 17334), (170, 17388), (180, 17457), (184, 17487), (196, 17577), (204, 17619), (206, 17637), (215, 17742), (232, 17943), (234, 17958), (238, 17994), (251, 18078), (256, 18120), (276, 18294), (282, 18333), (299, 18528), (300, 18573), (310, 18741), (311, 18744),

Gene: AGrandiflora\_20 Start: 16043, Stop: 19015, Start Num: 21

Candidate Starts for AGrandiflora\_20:

(Start: 21 @16043 has 33 MA's), (24, 16106), (31, 16190), (48, 16334), (107, 16928), (129, 17159), (131, 17177), (140, 17255), (141, 17261), (142, 17264), (144, 17270), (158, 17381), (200, 17693), (207, 17747), (208, 17750), (210, 17765), (211, 17780), (215, 17840), (232, 18041), (236, 18071), (238, 18092), (251, 18173), (281, 18425), (290, 18485), (299, 18626), (300, 18671), (311, 18842), (315, 19010),

Gene: AceofSpades\_19 Start: 14338, Stop: 17349, Start Num: 19

Candidate Starts for AceofSpades\_19:

(Start: 19 @14338 has 8 MA's), (28, 14494), (37, 14578), (38, 14587), (43, 14665), (91, 15286), (98, 15352), (102, 15445), (104, 15463), (108, 15547), (113, 15646), (121, 15736), (125, 15775), (153, 16003), (160, 16027), (213, 16096), (218, 16150), (219, 16165), (239, 16369), (241, 16390), (250, 16447), (262, 16540), (263, 16567), (268, 16627), (288, 16780), (299, 16957), (302, 17017), (307, 17116),

Gene: Adumb2043\_20 Start: 16058, Stop: 18916, Start Num: 21

Candidate Starts for Adumb2043\_20:

(Start: 21 @16058 has 33 MA's), (24, 16121), (27, 16175), (31, 16205), (89, 16610), (99, 16691), (103, 16748), (117, 16967), (133, 17114), (135, 17123), (139, 17183), (162, 17333), (170, 17387), (180, 17456), (184, 17486), (196, 17576), (204, 17618), (206, 17636), (215, 17741), (232, 17942), (234, 17957), (238, 17993), (251, 18077), (256, 18119), (276, 18293), (282, 18332), (299, 18527), (300, 18572), (310, 18740), (311, 18743),

Gene: AinMach\_19 Start: 15227, Stop: 18562, Start Num: 18

Candidate Starts for AinMach\_19:

(18, 15227), (26, 15374), (30, 15416), (32, 15437), (34, 15446), (43, 15533), (44, 15554), (84, 16064), (86, 16091), (102, 16292), (103, 16298), (114, 16472), (116, 16508), (122, 16562), (124, 16583), (126, 16598), (129, 16634), (130, 16637), (133, 16664), (146, 16757), (149, 16775), (156, 16841), (193, 17096), (199, 17153), (204, 17183), (211, 17243), (216, 17348), (227, 17480), (238, 17573), (242, 17594), (253, 17678), (263, 17765), (266, 17780), (269, 17831), (272, 17858), (273, 17867), (274, 17885), (277, 17897), (280, 17927), (283, 17960), (285, 17966), (292, 18008), (297, 18104), (298, 18122), (306, 18326), (307, 18329),

Gene: Amploria\_20 Start: 16058, Stop: 18916, Start Num: 21

Candidate Starts for Amploria\_20:

(Start: 21 @16058 has 33 MA's), (24, 16121), (27, 16175), (31, 16205), (103, 16748), (117, 16967), (133, 17114), (135, 17123), (139, 17183), (162, 17333), (170, 17387), (180, 17456), (184, 17486), (196, 17576), (204, 17618), (206, 17636), (215, 17741), (232, 17942), (234, 17957), (238, 17993), (251, 18077), (256, 18119), (276, 18293), (282, 18332), (299, 18527), (300, 18572), (310, 18740), (311, 18743),

Gene: Amyev\_20 Start: 16398, Stop: 19307, Start Num: 21

Candidate Starts for Amyev\_20:

(Start: 21 @16398 has 33 MA's), (89, 17013), (103, 17151), (117, 17370), (130, 17490), (133, 17517), (135, 17526), (146, 17607), (175, 17787), (186, 17877), (189, 17895), (206, 18027), (215, 18132), (217, 18168), (232, 18333), (234, 18348), (238, 18384), (243, 18408), (251, 18468), (265, 18579), (286, 18759), (299, 18918), (300, 18963), (311, 19134),

Gene: Aoka\_21 Start: 17080, Stop: 21027, Start Num: 1

Candidate Starts for Aoka\_21:

(Start: 1 @17080 has 6 MA's), (2, 17269), (7, 17515), (64, 18409), (66, 18427), (68, 18433), (70, 18439), (74, 18490), (103, 18856), (113, 19021), (114, 19030), (116, 19066), (133, 19222), (201, 19714), (210, 19777), (212, 19828), (214, 19849), (215, 19852), (217, 19888), (222, 19978), (227, 20017), (248, 20149), (251, 20170), (254, 20194), (264, 20275), (284, 20449), (285, 20452), (287, 20461), (289, 20473), (293, 20521), (299, 20632), (300, 20680), (301, 20686), (303, 20725), (305, 20746), (313, 20896),

Gene: Asa16\_20 Start: 16027, Stop: 18864, Start Num: 21

Candidate Starts for Asa16\_20:

(Start: 21 @16027 has 33 MA's), (24, 16090), (27, 16144), (31, 16174), (35, 16198), (103, 16696), (117, 16915), (133, 17062), (135, 17071), (138, 17122), (139, 17131), (164, 17302), (168, 17320), (170, 17335), (172, 17347), (182, 17425), (184, 17434), (191, 17476), (206, 17584), (210, 17614), (211, 17629), (215, 17689), (232, 17890), (236, 17920), (238, 17941), (251, 18022), (256, 18064), (265, 18133), (276, 18238), (283, 18301), (299, 18475), (300, 18520), (304, 18574), (310, 18688), (311, 18691),

Gene: Ascela\_20 Start: 16055, Stop: 18919, Start Num: 21

Candidate Starts for Ascela\_20:

(Start: 21 @16055 has 33 MA's), (24, 16118), (31, 16202), (47, 16346), (103, 16748), (133, 17114), (136, 17159), (143, 17198), (146, 17213), (150, 17237), (152, 17243), (167, 17354), (173, 17387), (189, 17480), (191, 17501), (205, 17600), (206, 17612), (211, 17657), (215, 17717), (232, 17918), (238, 17969), (251, 18053), (253, 18068), (265, 18164), (279, 18299), (281, 18305), (296, 18443), (299, 18527), (300, 18572), (304, 18626), (305, 18638), (309, 18731), (310, 18743), (311, 18746),

Gene: Berrie\_20 Start: 16192, Stop: 19419, Start Num: 21

Candidate Starts for Berrie\_20:

(Start: 21 @16192 has 33 MA's), (24, 16255), (31, 16339), (53, 16615), (56, 16627), (72, 16810), (73, 16831), (85, 16996), (87, 17029), (94, 17080), (103, 17227), (110, 17329), (123, 17497), (127, 17539), (133, 17593), (138, 17653), (139, 17662), (147, 17695), (148, 17701), (151, 17722), (166, 17842), (170, 17866), (191, 18007), (203, 18094), (206, 18115), (211, 18160), (215, 18220), (232, 18421), (238, 18472), (251, 18556), (265, 18667), (279, 18802), (282, 18811), (287, 18850), (292, 18883), (299, 19030), (300, 19075), (310, 19243),

Gene: Cassia\_20 Start: 16153, Stop: 19350, Start Num: 21

Candidate Starts for Cassia\_20:

(Start: 21 @16153 has 33 MA's), (23, 16207), (24, 16216), (33, 16321), (52, 16573), (54, 16585), (55, 16591), (61, 16690), (81, 16894), (103, 17137), (110, 17239), (117, 17356), (133, 17503), (166, 17767), (178, 17830), (187, 17920), (191, 17953), (211, 18115), (215, 18175), (225, 18331), (232, 18376), (238, 18427), (251, 18508), (253, 18523), (256, 18550), (265, 18619), (276, 18724), (299, 18961), (305, 19072), (310, 19174), (311, 19177),

Gene: Community\_20 Start: 17595, Stop: 20501, Start Num: 21

Candidate Starts for Community\_20:

(Start: 21 @17595 has 33 MA's), (39, 17808), (46, 17931), (76, 18093), (103, 18348), (127, 18660), (133, 18714), (148, 18810), (159, 18891), (182, 19035), (197, 19149), (199, 19152), (201, 19164), (203, 19176), (210, 19227), (215, 19302), (220, 19380), (229, 19488), (232, 19503), (236, 19533), (238, 19554), (251, 19638), (252, 19644), (265, 19749), (281, 19890), (287, 19932), (292, 19965), (296, 20028), (299, 20112), (300, 20157), (310, 20325), (311, 20328),

Gene: Cyan\_20 Start: 16046, Stop: 19063, Start Num: 21

Candidate Starts for Cyan\_20:

(Start: 21 @16046 has 33 MA's), (24, 16109), (31, 16193), (48, 16337), (109, 16955), (111, 16967), (118, 17087), (134, 17237), (158, 17429), (200, 17741), (207, 17795), (208, 17798), (210, 17813), (211, 17828), (215, 17888), (232, 18089), (236, 18119), (238, 18140), (251, 18221), (281, 18473), (290, 18533), (299, 18674), (300, 18719), (311, 18890), (315, 19058),

Gene: Elezi\_20 Start: 16028, Stop: 18865, Start Num: 21

Candidate Starts for Elezi\_20:

(Start: 21 @16028 has 33 MA's), (24, 16091), (35, 16199), (103, 16697), (117, 16916), (133, 17063), (138, 17123), (139, 17132), (164, 17303), (168, 17321), (170, 17336), (172, 17348), (182, 17426), (184, 17435), (191, 17477), (206, 17585), (210, 17615), (211, 17630), (215, 17690), (223, 17831), (227, 17855), (231, 17882), (232, 17891), (234, 17906), (238, 17942), (251, 18026), (262, 18098), (299, 18476), (300, 18521), (310, 18689),

Gene: Emotion\_19 Start: 14446, Stop: 17979, Start Num: 19

Candidate Starts for Emotion\_19:

(Start: 19 @14446 has 8 MA's), (37, 14686), (39, 14704), (50, 14923), (91, 15427), (102, 15586), (103, 15592), (155, 16171), (162, 16279), (171, 16342), (174, 16357), (195, 16561), (210, 16681), (213, 16750), (220, 16843), (224, 16912), (227, 16933), (237, 17023), (244, 17056), (247, 17077), (253, 17134), (260, 17185), (267, 17275), (268, 17278), (279, 17368), (288, 17422), (299, 17587), (302, 17647), (307, 17746),

Gene: Eraser\_20 Start: 16028, Stop: 18865, Start Num: 21

Candidate Starts for Eraser\_20:

(Start: 21 @16028 has 33 MA's), (24, 16091), (27, 16145), (31, 16175), (35, 16199), (103, 16697), (117, 16916), (133, 17063), (135, 17072), (138, 17123), (139, 17132), (164, 17303), (168, 17321), (170, 17336), (172, 17348), (182, 17426), (184, 17435), (191, 17477), (206, 17585), (210, 17615), (211, 17630), (215, 17690), (223, 17831), (227, 17855), (231, 17882), (232, 17891), (234, 17906), (238, 17942), (251, 18026), (262, 18098), (299, 18476), (300, 18521), (310, 18689),

Gene: EvenBluerMoon\_21 Start: 17115, Stop: 21062, Start Num: 1

Candidate Starts for EvenBluerMoon\_21:

(Start: 1 @17115 has 6 MA's), (2, 17304), (7, 17550), (64, 18444), (66, 18462), (68, 18468), (70, 18474), (74, 18525), (103, 18891), (113, 19056), (114, 19065), (116, 19101), (133, 19257), (201, 19749), (210, 19812), (212, 19863), (214, 19884), (215, 19887), (217, 19923), (222, 20013), (227, 20052), (248, 20184), (251, 20205), (254, 20229), (264, 20310), (284, 20484), (285, 20487), (287, 20496), (289, 20508), (293, 20556), (299, 20667), (300, 20715), (301, 20721), (303, 20760), (305, 20781), (313, 20931),

Gene: FiveHead\_21 Start: 14327, Stop: 17338, Start Num: 19

Candidate Starts for FiveHead\_21:

(Start: 19 @14327 has 8 MA's), (28, 14483), (37, 14567), (38, 14576), (43, 14654), (50, 14804), (91, 15275), (102, 15434), (104, 15452), (108, 15536), (113, 15635), (121, 15725), (128, 15806), (129, 15815), (160, 16016), (213, 16085), (218, 16139), (235, 16334), (239, 16358), (241, 16379), (245, 16394), (250, 16436), (263, 16556), (268, 16616), (288, 16769), (294, 16847), (299, 16946), (302, 17006),

Gene: Flutur\_20 Start: 16046, Stop: 19297, Start Num: 21

Candidate Starts for Flutur\_20:

(Start: 21 @16046 has 33 MA's), (24, 16109), (31, 16193), (41, 16325), (50, 16508), (57, 16598), (103, 17117), (117, 17336), (133, 17483), (135, 17492), (141, 17567), (157, 17678), (183, 17852), (192, 17918), (194, 17930), (203, 17996), (211, 18062), (215, 18122), (232, 18323), (238, 18374), (240, 18380), (251, 18458), (263, 18557), (270, 18626), (281, 18710), (290, 18770), (292, 18785), (299, 18908), (300, 18953), (301, 18959), (311, 19124),

Gene: Iter\_20 Start: 16055, Stop: 18919, Start Num: 21

Candidate Starts for Iter\_20:

(Start: 21 @16055 has 33 MA's), (24, 16118), (31, 16202), (47, 16346), (103, 16748), (133, 17114), (136, 17159), (143, 17198), (146, 17213), (150, 17237), (152, 17243), (167, 17354), (173, 17387), (189, 17480), (191, 17501), (205, 17600), (206, 17612), (211, 17657), (215, 17717), (232, 17918), (238, 17969), (251, 18053), (253, 18068), (265, 18164), (279, 18299), (281, 18305), (296, 18443), (299, 18527), (300, 18572), (304, 18626), (305, 18638), (309, 18731), (310, 18743), (311, 18746),

Gene: Janeemi\_21 Start: 17623, Stop: 20508, Start Num: 21

Candidate Starts for Janeemi\_21:

(Start: 21 @17623 has 33 MA's), (25, 17725), (39, 17836), (46, 17959), (76, 18121), (103, 18376), (133, 18742), (179, 19030), (197, 19180), (199, 19183), (201, 19195), (203, 19207), (206, 19228), (215, 19333), (232, 19534), (234, 19549), (238, 19585), (251, 19669), (262, 19741), (299, 20119), (300, 20164), (310, 20332),

Gene: JanetJ\_21 Start: 16898, Stop: 21157, Start Num: 1

Candidate Starts for JanetJ\_21:

(Start: 1 @16898 has 6 MA's), (2, 17087), (4, 17222), (7, 17333), (52, 18398), (60, 18482), (62, 18521), (65, 18545), (88, 18797), (96, 18854), (100, 18932), (103, 18974), (114, 19160), (116, 19196), (133, 19352), (188, 19739), (201, 19844), (215, 19982), (222, 20108), (223, 20123), (226, 20141), (228, 20162), (230, 20171), (233, 20195), (248, 20279), (251, 20300), (254, 20324), (258, 20357), (285, 20582), (289, 20603), (295, 20675), (299, 20762), (303, 20858), (308, 20948), (313, 21026),

Gene: JasmineDragon\_19 Start: 14321, Stop: 17332, Start Num: 19

Candidate Starts for JasmineDragon\_19:

(5, 13733), (Start: 19 @14321 has 8 MA's), (28, 14477), (38, 14570), (43, 14648), (91, 15269), (102, 15428), (104, 15446), (108, 15530), (119, 15698), (121, 15719), (129, 15809), (145, 15944), (160, 16010), (213, 16079), (218, 16133), (239, 16352), (241, 16373), (250, 16430), (262, 16523), (263, 16550), (268, 16610), (288, 16763), (299, 16940), (302, 17000),

Gene: Joemato\_20 Start: 16046, Stop: 19063, Start Num: 21

Candidate Starts for Joemato\_20:

(Start: 21 @16046 has 33 MA's), (24, 16109), (31, 16193), (48, 16337), (109, 16955), (118, 17087), (134, 17237), (158, 17429), (207, 17795), (208, 17798), (210, 17813), (211, 17828), (215, 17888), (232, 18089), (236, 18119), (238, 18140), (251, 18221), (281, 18473), (290, 18533), (299, 18674), (300, 18719), (311, 18890), (315, 19058),

Gene: JohnDoe\_20 Start: 16041, Stop: 19058, Start Num: 21

Candidate Starts for JohnDoe\_20:

(Start: 21 @16041 has 33 MA's), (24, 16104), (31, 16188), (48, 16332), (109, 16950), (111, 16962), (118, 17082), (134, 17232), (158, 17424), (200, 17736), (207, 17790), (208, 17793), (210, 17808), (211, 17823), (215, 17883), (232, 18084), (236, 18114), (238, 18135), (251, 18216), (281, 18468), (290, 18528), (299, 18669), (300, 18714), (311, 18885), (315, 19053),

Gene: JohnThicc\_19 Start: 14327, Stop: 17338, Start Num: 19

Candidate Starts for JohnThicc\_19:

(Start: 19 @14327 has 8 MA's), (28, 14483), (37, 14567), (38, 14576), (43, 14654), (50, 14804), (91, 15275), (102, 15434), (104, 15452), (108, 15536), (113, 15635), (121, 15725), (128, 15806), (129, 15815), (160, 16016), (213, 16085), (218, 16139), (235, 16334), (239, 16358), (241, 16379), (245, 16394), (250, 16436), (263, 16556), (268, 16616), (288, 16769), (294, 16847), (299, 16946), (302, 17006),

Gene: Jstan\_21 Start: 16028, Stop: 18865, Start Num: 21

Candidate Starts for Jstan\_21:

(Start: 21 @16028 has 33 MA's), (24, 16091), (27, 16145), (31, 16175), (35, 16199), (103, 16697), (117, 16916), (133, 17063), (135, 17072), (138, 17123), (139, 17132), (164, 17303), (168, 17321), (170, 17336), (172, 17348), (182, 17426), (184, 17435), (191, 17477), (206, 17585), (210, 17615), (211, 17630), (215, 17690), (232, 17891), (236, 17921), (238, 17942), (251, 18023), (256, 18065), (265, 18134), (276, 18239), (283, 18302), (299, 18476), (300, 18521), (304, 18575), (310, 18689), (311, 18692),

Gene: JuneStar\_20 Start: 16151, Stop: 19756, Start Num: 11

Candidate Starts for JuneStar\_20:

(Start: 11 @16151 has 3 MA's), (13, 16214), (15, 16268), (16, 16313), (20, 16496), (22, 16532), (42, 16763), (80, 17255), (97, 17435), (103, 17546), (110, 17648), (117, 17765), (133, 17912), (141, 17996), (145, 18011), (151, 18047), (166, 18173), (178, 18236), (187, 18326), (211, 18521), (215, 18581), (223, 18722), (232, 18782), (238, 18833), (251, 18917), (276, 19133), (286, 19208), (292, 19244), (299, 19367), (305, 19478), (310, 19580), (311, 19583),

Gene: Kaylissa\_20 Start: 16047, Stop: 19064, Start Num: 21

Candidate Starts for Kaylissa\_20:

(Start: 21 @16047 has 33 MA's), (24, 16110), (31, 16194), (48, 16338), (109, 16956), (111, 16968), (118, 17088), (134, 17238), (158, 17430), (207, 17796), (208, 17799), (210, 17814), (211, 17829), (215, 17889), (232, 18090), (236, 18120), (238, 18141), (251, 18222), (281, 18474), (290, 18534), (299, 18675), (300, 18720), (311, 18891), (315, 19059),

Gene: LadyAstra\_19 Start: 14327, Stop: 17338, Start Num: 19

Candidate Starts for LadyAstra\_19:

(Start: 19 @14327 has 8 MA's), (28, 14483), (37, 14567), (38, 14576), (43, 14654), (50, 14804), (91, 15275), (102, 15434), (104, 15452), (108, 15536), (113, 15635), (121, 15725), (128, 15806), (129, 15815), (160, 16016), (213, 16085), (218, 16139), (235, 16334), (239, 16358), (241, 16379), (245, 16394), (250, 16436), (255, 16490), (263, 16556), (268, 16616), (288, 16769), (294, 16847), (299, 16946), (302, 17006),

Gene: Lego\_20 Start: 16046, Stop: 19018, Start Num: 21

Candidate Starts for Lego\_20:

(Start: 21 @16046 has 33 MA's), (24, 16109), (31, 16193), (48, 16337), (107, 16931), (129, 17162), (131, 17180), (140, 17258), (141, 17264), (142, 17267), (144, 17273), (158, 17384), (200, 17696), (207, 17750), (210, 17768), (211, 17783), (215, 17843), (232, 18044), (236, 18074), (238, 18095), (249, 18158), (251, 18176), (281, 18428), (290, 18488), (299, 18629), (300, 18674), (311, 18845), (315, 19013),

Gene: Lizalica\_20 Start: 16031, Stop: 19048, Start Num: 21

Candidate Starts for Lizalica\_20:

(Start: 21 @16031 has 33 MA's), (24, 16094), (27, 16148), (31, 16178), (48, 16322), (109, 16940), (111, 16952), (112, 16997), (118, 17072), (134, 17222), (141, 17294), (158, 17414), (190, 17633), (195, 17684), (207, 17780), (208, 17783), (210, 17798), (215, 17873), (220, 17951), (232, 18074),

(236, 18104), (238, 18125), (251, 18206), (262, 18278), (281, 18458), (290, 18518), (299, 18659), (300, 18704), (311, 18875), (315, 19043),

Gene: London\_20 Start: 16028, Stop: 18865, Start Num: 21

Candidate Starts for London\_20:

(Start: 21 @16028 has 33 MA's), (24, 16091), (35, 16199), (103, 16697), (117, 16916), (133, 17063), (138, 17123), (139, 17132), (164, 17303), (168, 17321), (170, 17336), (172, 17348), (182, 17426), (184, 17435), (191, 17477), (206, 17585), (210, 17615), (211, 17630), (215, 17690), (223, 17831), (227, 17855), (231, 17882), (232, 17891), (234, 17906), (238, 17942), (251, 18026), (262, 18098), (299, 18476), (300, 18521), (310, 18689),

Gene: MiniMommy\_19 Start: 14322, Stop: 17333, Start Num: 19

Candidate Starts for MiniMommy\_19:

(5, 13734), (Start: 19 @14322 has 8 MA's), (28, 14478), (38, 14571), (43, 14649), (91, 15270), (102, 15429), (104, 15447), (108, 15531), (113, 15630), (121, 15720), (128, 15801), (129, 15810), (160, 16011), (213, 16080), (218, 16134), (235, 16329), (239, 16353), (241, 16374), (245, 16389), (250, 16431), (263, 16551), (268, 16611), (288, 16764), (294, 16842), (299, 16941), (302, 17001),

Gene: Morrey\_32 Start: 17117, Stop: 21064, Start Num: 1

Candidate Starts for Morrey\_32:

(Start: 1 @17117 has 6 MA's), (2, 17306), (7, 17552), (64, 18446), (66, 18464), (68, 18470), (70, 18476), (74, 18527), (103, 18893), (113, 19058), (114, 19067), (116, 19103), (133, 19259), (201, 19751), (210, 19814), (212, 19865), (214, 19886), (215, 19889), (217, 19925), (222, 20015), (227, 20054), (248, 20186), (251, 20207), (254, 20231), (264, 20312), (284, 20486), (285, 20489), (287, 20498), (289, 20510), (293, 20558), (299, 20669), (300, 20717), (301, 20723), (303, 20762), (305, 20783), (313, 20933),

Gene: Mudpuppy\_20 Start: 16045, Stop: 19062, Start Num: 21

Candidate Starts for Mudpuppy\_20:

(Start: 21 @16045 has 33 MA's), (24, 16108), (31, 16192), (48, 16336), (101, 16837), (109, 16954), (111, 16966), (118, 17086), (132, 17230), (134, 17236), (158, 17428), (190, 17647), (195, 17698), (207, 17794), (208, 17797), (210, 17812), (211, 17827), (215, 17887), (220, 17965), (232, 18088), (238, 18139), (251, 18220), (281, 18472), (290, 18532), (299, 18673), (300, 18718), (311, 18889), (315, 19057),

Gene: Niobe\_20 Start: 16028, Stop: 18865, Start Num: 21

Candidate Starts for Niobe\_20:

(Start: 21 @16028 has 33 MA's), (24, 16091), (27, 16145), (31, 16175), (35, 16199), (103, 16697), (117, 16916), (133, 17063), (135, 17072), (138, 17123), (139, 17132), (164, 17303), (168, 17321), (170, 17336), (172, 17348), (182, 17426), (184, 17435), (191, 17477), (206, 17585), (210, 17615), (211, 17630), (215, 17690), (232, 17891), (236, 17921), (238, 17942), (251, 18023), (256, 18065), (265, 18134), (276, 18239), (283, 18302), (299, 18476), (300, 18521), (304, 18575), (310, 18689), (311, 18692),

Gene: Nitro\_20 Start: 16056, Stop: 18917, Start Num: 21

Candidate Starts for Nitro\_20:

(Start: 21 @16056 has 33 MA's), (24, 16119), (27, 16173), (31, 16203), (35, 16227), (46, 16308), (103, 16725), (117, 16944), (133, 17091), (135, 17100), (138, 17151), (139, 17160), (168, 17349), (170, 17364), (172, 17376), (184, 17463), (191, 17505), (206, 17613), (215, 17718), (232, 17919), (236, 17949), (238, 17970), (251, 18054), (253, 18069), (257, 18108), (265, 18165), (278, 18288), (279, 18300), (287, 18348), (292, 18381), (296, 18444), (299, 18528), (310, 18741), (311, 18744),

Gene: NoSwimming\_22 Start: 18041, Stop: 22300, Start Num: 1

Candidate Starts for NoSwimming\_22:

(Start: 1 @18041 has 6 MA's), (2, 18230), (3, 18341), (6, 18449), (7, 18476), (8, 18485), (9, 18494), (10, 18620), (14, 18758), (17, 18875), (52, 19541), (60, 19625), (62, 19664), (65, 19688), (67, 19694), (71, 19718), (88, 19940), (93, 19976), (95, 19991), (96, 19997), (103, 20117), (105, 20156), (106, 20180), (114, 20303), (115, 20336), (116, 20339), (120, 20366), (123, 20399), (124, 20414), (126, 20429), (133, 20495), (134, 20498), (163, 20714), (165, 20726), (201, 20987), (214, 21122), (215, 21125), (217, 21161), (222, 21251), (226, 21284), (228, 21305), (230, 21314), (234, 21341), (246, 21404), (248, 21422), (251, 21443), (254, 21467), (261, 21506), (285, 21725), (289, 21746), (295, 21818), (299, 21905), (308, 22091), (312, 22163), (313, 22169),

Gene: Origami\_19 Start: 14327, Stop: 17338, Start Num: 19

Candidate Starts for Origami\_19:

(Start: 19 @14327 has 8 MA's), (28, 14483), (37, 14567), (38, 14576), (43, 14654), (50, 14804), (91, 15275), (102, 15434), (104, 15452), (108, 15536), (113, 15635), (121, 15725), (128, 15806), (129, 15815), (160, 16016), (213, 16085), (218, 16139), (235, 16334), (239, 16358), (241, 16379), (245, 16394), (250, 16436), (255, 16490), (263, 16556), (268, 16616), (288, 16769), (294, 16847), (299, 16946), (302, 17006),

Gene: Phives\_21 Start: 17458, Stop: 20337, Start Num: 21

Candidate Starts for Phives\_21:

(Start: 21 @17458 has 33 MA's), (36, 17650), (103, 18211), (127, 18523), (133, 18577), (148, 18673), (179, 18862), (197, 19012), (199, 19015), (201, 19027), (203, 19039), (210, 19090), (215, 19165), (232, 19366), (238, 19417), (251, 19498), (252, 19504), (259, 19558), (276, 19714), (299, 19948), (300, 19993), (310, 20161),

Gene: Pixelle\_20 Start: 16401, Stop: 19310, Start Num: 21

Candidate Starts for Pixelle\_20:

(Start: 21 @16401 has 33 MA's), (89, 17016), (103, 17154), (117, 17373), (130, 17493), (133, 17520), (135, 17529), (146, 17610), (154, 17658), (175, 17790), (176, 17793), (186, 17880), (189, 17898), (202, 18000), (206, 18030), (211, 18075), (215, 18135), (217, 18171), (232, 18336), (238, 18387), (251, 18471), (265, 18582), (286, 18762), (299, 18921), (300, 18966), (311, 19137),

Gene: Powerpuff\_20 Start: 16097, Stop: 19069, Start Num: 21

Candidate Starts for Powerpuff\_20:

(Start: 21 @16097 has 33 MA's), (24, 16160), (31, 16244), (48, 16388), (107, 16982), (129, 17213), (131, 17231), (140, 17309), (141, 17315), (142, 17318), (144, 17324), (158, 17435), (200, 17747), (207, 17801), (208, 17804), (210, 17819), (211, 17834), (215, 17894), (232, 18095), (236, 18125), (238, 18146), (251, 18227), (281, 18479), (290, 18539), (299, 18680), (300, 18725), (311, 18896), (315, 19064),

Gene: PrairieDogTown\_21 Start: 17117, Stop: 21064, Start Num: 1

Candidate Starts for PrairieDogTown\_21:

(Start: 1 @17117 has 6 MA's), (2, 17306), (7, 17552), (64, 18446), (66, 18464), (68, 18470), (70, 18476), (74, 18527), (103, 18893), (113, 19058), (114, 19067), (116, 19103), (133, 19259), (201, 19751), (210, 19814), (212, 19865), (214, 19886), (215, 19889), (217, 19925), (222, 20015), (227, 20054), (248, 20186), (251, 20207), (254, 20231), (264, 20312), (284, 20486), (285, 20489), (287, 20498), (289, 20510), (293, 20558), (299, 20669), (300, 20717), (301, 20723), (303, 20762), (305, 20783), (313, 20933),

Gene: Pumpkins\_20 Start: 16163, Stop: 19783, Start Num: 11

Candidate Starts for Pumpkins\_20:

(Start: 11 @16163 has 3 MA's), (12, 16217), (13, 16226), (20, 16520), (40, 16748), (51, 16976), (59, 17048), (67, 17153), (75, 17216), (79, 17273), (92, 17432), (97, 17459), (103, 17570), (117, 17789),

(133, 17936), (137, 17987), (151, 18074), (166, 18200), (178, 18263), (181, 18308), (187, 18353), (198, 18452), (215, 18608), (232, 18809), (238, 18860), (251, 18941), (276, 19157), (283, 19220), (299, 19394), (305, 19505), (310, 19607), (314, 19730),

Gene: Schaffner\_20 Start: 16150, Stop: 19755, Start Num: 11

Candidate Starts for Schaffner\_20:

(Start: 11 @16150 has 3 MA's), (13, 16213), (15, 16267), (16, 16312), (20, 16495), (22, 16531), (42, 16762), (80, 17254), (97, 17434), (103, 17545), (110, 17647), (117, 17764), (133, 17911), (141, 17995), (145, 18010), (151, 18046), (166, 18172), (178, 18235), (187, 18325), (211, 18520), (215, 18580), (227, 18745), (232, 18781), (236, 18811), (238, 18832), (251, 18913), (276, 19129), (283, 19192), (299, 19366), (305, 19477), (310, 19579), (311, 19582),

Gene: Scotia\_22 Start: 18041, Stop: 22303, Start Num: 1

Candidate Starts for Scotia\_22:

(Start: 1 @18041 has 6 MA's), (2, 18230), (3, 18341), (7, 18476), (9, 18494), (14, 18758), (17, 18875), (53, 19550), (58, 19580), (63, 19682), (69, 19709), (77, 19781), (78, 19811), (82, 19886), (83, 19901), (88, 19961), (97, 20042), (99, 20096), (103, 20153), (106, 20216), (114, 20339), (116, 20375), (120, 20402), (127, 20477), (130, 20504), (133, 20531), (135, 20540), (144, 20609), (156, 20699), (161, 20723), (169, 20771), (177, 20813), (185, 20873), (199, 20978), (209, 21047), (214, 21125), (215, 21128), (217, 21164), (222, 21254), (226, 21287), (228, 21308), (230, 21317), (234, 21344), (246, 21407), (248, 21425), (251, 21446), (254, 21470), (261, 21509), (285, 21728), (289, 21749), (295, 21821), (299, 21908), (303, 22004), (308, 22094), (312, 22166), (313, 22172),

Gene: ShakeltOph\_19 Start: 14321, Stop: 17332, Start Num: 19

Candidate Starts for ShakeltOph\_19:

(5, 13733), (Start: 19 @14321 has 8 MA's), (28, 14477), (38, 14570), (43, 14648), (91, 15269), (102, 15428), (104, 15446), (108, 15530), (119, 15698), (121, 15719), (129, 15809), (145, 15944), (160, 16010), (213, 16079), (218, 16133), (239, 16352), (241, 16373), (250, 16430), (262, 16523), (263, 16550), (268, 16610), (288, 16763), (299, 16940), (302, 17000),

Gene: Simpson\_22 Start: 16046, Stop: 19063, Start Num: 21

Candidate Starts for Simpson\_22:

(Start: 21 @16046 has 33 MA's), (24, 16109), (31, 16193), (48, 16337), (109, 16955), (118, 17087), (134, 17237), (158, 17429), (207, 17795), (208, 17798), (210, 17813), (211, 17828), (215, 17888), (232, 18089), (236, 18119), (238, 18140), (251, 18221), (281, 18473), (290, 18533), (299, 18674), (300, 18719), (311, 18890), (315, 19058),

Gene: Skelbel\_21 Start: 16028, Stop: 18865, Start Num: 21

Candidate Starts for Skelbel\_21:

(Start: 21 @16028 has 33 MA's), (24, 16091), (27, 16145), (31, 16175), (35, 16199), (103, 16697), (117, 16916), (133, 17063), (135, 17072), (138, 17123), (139, 17132), (164, 17303), (168, 17321), (170, 17336), (172, 17348), (182, 17426), (184, 17435), (191, 17477), (206, 17585), (210, 17615), (211, 17630), (215, 17690), (232, 17891), (236, 17921), (238, 17942), (251, 18023), (256, 18065), (265, 18134), (276, 18239), (283, 18302), (299, 18476), (300, 18521), (304, 18575), (310, 18689), (311, 18692),

Gene: Subaru\_20 Start: 16028, Stop: 18865, Start Num: 21

Candidate Starts for Subaru\_20:

(Start: 21 @16028 has 33 MA's), (24, 16091), (27, 16145), (31, 16175), (35, 16199), (103, 16697), (117, 16916), (133, 17063), (135, 17072), (138, 17123), (139, 17132), (164, 17303), (168, 17321), (170, 17336), (172, 17348), (182, 17426), (184, 17435), (191, 17477), (206, 17585), (210, 17615), (211, 17630), (215, 17690), (232, 17891), (236, 17921), (238, 17942), (251, 18023), (256, 18065), (265, 18134), (283, 18302), (299, 18476), (300, 18521), (304, 18575), (310, 18689), (311, 18692),

Gene: Tallboi\_20 Start: 16061, Stop: 18886, Start Num: 21

Candidate Starts for Tallboi\_20:

(Start: 21 @16061 has 33 MA's), (24, 16124), (27, 16178), (29, 16196), (31, 16208), (35, 16232), (103, 16730), (117, 16949), (133, 17096), (135, 17105), (146, 17186), (175, 17366), (189, 17474), (204, 17588), (206, 17606), (215, 17711), (220, 17789), (232, 17912), (234, 17927), (238, 17963), (243, 17987), (251, 18047), (265, 18158), (275, 18260), (299, 18497), (300, 18542), (310, 18710),

Gene: Tbone\_20 Start: 16050, Stop: 19067, Start Num: 21

Candidate Starts for Tbone\_20:

(Start: 21 @16050 has 33 MA's), (24, 16113), (31, 16197), (48, 16341), (101, 16842), (109, 16959), (111, 16971), (118, 17091), (132, 17235), (134, 17241), (158, 17433), (190, 17652), (195, 17703), (207, 17799), (208, 17802), (210, 17817), (211, 17832), (215, 17892), (220, 17970), (232, 18093), (238, 18144), (251, 18225), (257, 18279), (271, 18402), (286, 18516), (290, 18537), (299, 18678), (300, 18723), (311, 18894), (315, 19062),

Gene: TforTroy\_20 Start: 16181, Stop: 19015, Start Num: 21

Candidate Starts for TforTroy\_20:

(Start: 21 @16181 has 33 MA's), (24, 16244), (31, 16328), (35, 16352), (89, 16712), (103, 16850), (110, 16952), (117, 17069), (133, 17216), (135, 17225), (138, 17270), (146, 17306), (162, 17408), (175, 17486), (189, 17594), (204, 17708), (206, 17726), (212, 17807), (215, 17831), (220, 17909), (221, 17930), (232, 18032), (233, 18044), (238, 18083), (251, 18164), (265, 18275), (276, 18377), (286, 18449), (287, 18452), (290, 18470), (299, 18626), (300, 18671), (311, 18842),

Gene: Tian\_20 Start: 16398, Stop: 19307, Start Num: 21

Candidate Starts for Tian\_20:

(Start: 21 @16398 has 33 MA's), (89, 17013), (103, 17151), (117, 17370), (130, 17490), (133, 17517), (135, 17526), (146, 17607), (175, 17787), (186, 17877), (189, 17895), (206, 18027), (215, 18132), (217, 18168), (232, 18333), (234, 18348), (238, 18384), (243, 18408), (251, 18468), (265, 18579), (286, 18759), (299, 18918), (300, 18963), (311, 19134),

Gene: Tuck\_21 Start: 17575, Stop: 20481, Start Num: 21

Candidate Starts for Tuck\_21:

(Start: 21 @17575 has 33 MA's), (39, 17788), (46, 17911), (76, 18073), (103, 18328), (127, 18640), (133, 18694), (148, 18790), (159, 18871), (182, 19015), (197, 19129), (199, 19132), (201, 19144), (203, 19156), (210, 19207), (215, 19282), (220, 19360), (229, 19468), (232, 19483), (236, 19513), (238, 19534), (251, 19618), (252, 19624), (265, 19729), (281, 19870), (287, 19912), (292, 19945), (296, 20008), (299, 20092), (300, 20137), (310, 20305), (311, 20308),

Gene: Turab\_20 Start: 16058, Stop: 18916, Start Num: 21

Candidate Starts for Turab\_20:

(Start: 21 @16058 has 33 MA's), (24, 16121), (27, 16175), (31, 16205), (89, 16610), (99, 16691), (103, 16748), (117, 16967), (133, 17114), (135, 17123), (139, 17183), (162, 17333), (170, 17387), (180, 17456), (184, 17486), (196, 17576), (204, 17618), (206, 17636), (215, 17741), (232, 17942), (234, 17957), (238, 17993), (251, 18077), (256, 18119), (276, 18293), (282, 18332), (299, 18527), (300, 18572), (310, 18740), (311, 18743),

Gene: Tutumahutu\_20 Start: 16097, Stop: 19069, Start Num: 21

Candidate Starts for Tutumahutu\_20:

(Start: 21 @16097 has 33 MA's), (24, 16160), (31, 16244), (48, 16388), (107, 16982), (129, 17213), (131, 17231), (140, 17309), (141, 17315), (142, 17318), (144, 17324), (158, 17435), (200, 17747), (207, 17801), (208, 17804), (210, 17819), (211, 17834), (215, 17894), (232, 18095), (236, 18125), (238, 18146), (249, 18209), (251, 18227), (281, 18479), (290, 18539), (299, 18680), (300, 18725),

(311, 18896), (315, 19064),

Gene: VroomVroom\_19 Start: 14338, Stop: 17349, Start Num: 19

Candidate Starts for VroomVroom\_19:

(Start: 19 @14338 has 8 MA's), (28, 14494), (37, 14578), (38, 14587), (43, 14665), (91, 15286), (98, 15352), (102, 15445), (104, 15463), (108, 15547), (113, 15646), (121, 15736), (125, 15775), (160, 16027), (213, 16096), (218, 16150), (219, 16165), (239, 16369), (241, 16390), (250, 16447), (262, 16540), (263, 16567), (268, 16627), (288, 16780), (299, 16957), (302, 17017), (307, 17116),

Gene: Warda\_20 Start: 16042, Stop: 19059, Start Num: 21

Candidate Starts for Warda\_20:

(Start: 21 @16042 has 33 MA's), (24, 16105), (31, 16189), (48, 16333), (101, 16834), (109, 16951), (111, 16963), (118, 17083), (132, 17227), (134, 17233), (158, 17425), (190, 17644), (195, 17695), (207, 17791), (208, 17794), (210, 17809), (211, 17824), (215, 17884), (232, 18085), (238, 18136), (251, 18217), (281, 18469), (290, 18529), (299, 18670), (300, 18715), (311, 18886), (315, 19054),

Gene: Yang\_20 Start: 16153, Stop: 19056, Start Num: 45

Candidate Starts for Yang\_20:

(Start: 45 @16153 has 1 MA's), (49, 16216), (90, 16705), (103, 16843), (110, 16945), (117, 17062), (133, 17209), (166, 17473), (178, 17536), (187, 17626), (215, 17881), (217, 17917), (227, 18046), (232, 18082), (236, 18112), (238, 18133), (251, 18214), (276, 18430), (283, 18493), (299, 18667), (310, 18880), (311, 18883),

Gene: YesChef\_20 Start: 16097, Stop: 19069, Start Num: 21

Candidate Starts for YesChef\_20:

(Start: 21 @16097 has 33 MA's), (24, 16160), (31, 16244), (48, 16388), (107, 16982), (129, 17213), (131, 17231), (140, 17309), (141, 17315), (142, 17318), (144, 17324), (158, 17435), (200, 17747), (207, 17801), (208, 17804), (210, 17819), (211, 17834), (215, 17894), (232, 18095), (236, 18125), (238, 18146), (251, 18227), (281, 18479), (290, 18539), (291, 18548), (299, 18680), (300, 18725), (311, 18896), (315, 19064),