



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 188164 Report

This analysis was run 11/02/24 on database version 579.

Pham number 188164 has 59 members, 7 are drafts.

Phages represented in each track:

- Track 1 : Madi\_22, Sienna\_22
- Track 2 : Beyoncage\_22, Djokovic\_22, Terapin\_22, BiteSize\_22
- Track 3 : Suzy\_22
- Track 4 : LilyPad\_23
- Track 5 : LittleFella\_24
- Track 6 : Gibbin\_28
- Track 7 : DumpTruck\_26
- Track 8 : Erutan\_27
- Track 9 : Apeppi\_24, LuckyLeo\_26
- Track 10 : GretelLyn\_27, Sadboi\_27
- Track 11 : Mima20\_27
- Track 12 : Zany\_26
- Track 13 : Alyssamiracle\_27
- Track 14 : MoiGyank\_29
- Track 15 : Genamy16\_27
- Track 16 : Alephilan\_24
- Track 17 : Avian\_25
- Track 18 : Wojtek\_26
- Track 19 : Lila22\_26
- Track 20 : Xenia2\_23
- Track 21 : Sampudon\_27, Jalebi\_26
- Track 22 : Yikes\_28
- Track 23 : BirthdayBoy\_28
- Track 24 : NovaSharks\_26
- Track 25 : Rumi\_26
- Track 26 : Patos\_28, NorManre\_28
- Track 27 : ParvusTarda\_27
- Track 28 : Jamemuya19\_25
- Track 29 : Lambo\_27
- Track 30 : OtterstedtS21\_27
- Track 31 : Ranch\_27
- Track 32 : Fulcrum\_28, GOATification\_28
- Track 33 : Tillicus\_27
- Track 34 : DoobyDoo\_26
- Track 35 : DaviePasture\_27
- Track 36 : Thumb\_26
- Track 37 : Predator\_30

- Track 38 : Puissant\_25
- Track 39 : Damien\_26
- Track 40 : Megatron06\_28
- Track 41 : Phreeze\_26
- Track 42 : Oaker\_26
- Track 43 : Beckerton\_26
- Track 44 : Konstantine\_31
- Track 45 : Cborch11\_27
- Track 46 : Barnyard\_33
- Track 47 : DrLupo\_35
- Track 48 : Patience\_34
- Track 49 : Labelle\_33
- Track 50 : Madruga\_32

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

The start number called the most often in the published annotations is 2, it was called in 26 of the 52 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Apeppi\_24, BirthdayBoy\_28, DaviePasture\_27, DoobyDoo\_26, DumpTruck\_26, Erutan\_27, Fulcrum\_28, GOATification\_28, Gibbin\_28, GretelLyn\_27, Jalebi\_26, Lambo\_27, Lila22\_26, LuckyLeo\_26, MoiGyank\_29, NorManre\_28, NovaSharks\_26, OtterstedtS21\_27, ParvusTarda\_27, Patos\_28, Ranch\_27, Rumi\_26, Sadboi\_27, Sampudon\_27, Tillicus\_27, Wojtek\_26, Xenia2\_23, Yikes\_28,

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

- Alephilan\_24, Jamemuya19\_25, Mima20\_27,

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

- Alyssmiracle\_27, Avian\_25, Barnyard\_33, Beckerton\_26, Beyoncage\_22, BiteSize\_22, Cborch11\_27, Damien\_26, Djokovic\_22, DrLupo\_35, Genamy16\_27, Konstantine\_31, Labelle\_33, LilyPad\_23, LittleFella\_24, Madi\_22, Madruga\_32, Megatron06\_28, Oaker\_26, Patience\_34, Phreeze\_26, Predator\_30, Puissant\_25, Sienna\_22, Suzy\_22, Terapin\_22, Thumb\_26, Zany\_26,

**Summary by start number:**

Start 2:

- Found in 31 of 59 ( 52.5% ) of genes in pham
- Manual Annotations of this start: 26 of 52
- Called 90.3% of time when present
- Phage (with cluster) where this start called: Apeppi\_24 (DV), BirthdayBoy\_28 (DV), DaviePasture\_27 (DV), DoobyDoo\_26 (DV), DumpTruck\_26 (DV), Erutan\_27 (DV), Fulcrum\_28 (DV), GOATification\_28 (DV), Gibbin\_28 (DV), GretelLyn\_27 (DV), Jalebi\_26 (DV), Lambo\_27 (DV), Lila22\_26 (DV), LuckyLeo\_26 (DV), MoiGyank\_29 (DV), NorManre\_28 (DV), NovaSharks\_26 (DV), OtterstedtS21\_27 (DV), ParvusTarda\_27 (DV), Patos\_28 (DV), Ranch\_27 (DV), Rumi\_26 (DV), Sadboi\_27 (DV), Sampudon\_27 (DV), Tillicus\_27 (DV), Wojtek\_26 (DV), Xenia2\_23 (DV), Yikes\_28 (DV),

Start 3:

- Found in 3 of 59 ( 5.1% ) of genes in pham
- Manual Annotations of this start: 2 of 52
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Alyssamiracle\_27 (DV), Avian\_25 (DV), Genamy16\_27 (DV),

Start 4:

- Found in 1 of 59 ( 1.7% ) of genes in pham
- Manual Annotations of this start: 1 of 52
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Zany\_26 (DV),

Start 10:

- Found in 30 of 59 ( 50.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 6.7% of time when present
- Phage (with cluster) where this start called: Alephilan\_24 (DV), Mima20\_27 (DV),

Start 12:

- Found in 30 of 59 ( 50.8% ) of genes in pham
- No Manual Annotations of this start.
- Called 3.3% of time when present
- Phage (with cluster) where this start called: Jamemuya19\_25 (DV),

Start 20:

- Found in 10 of 59 ( 16.9% ) of genes in pham
- Manual Annotations of this start: 9 of 52
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beckerton\_26 (H1), Cborch11\_27 (H1), Damien\_26 (H1), Konstantine\_31 (H1), Megatron06\_28 (H1), Oaker\_26 (H1), Phreeze\_26 (H1), Predator\_30 (H1), Puissant\_25 (H1), Thumb\_26 (H1),

Start 21:

- Found in 5 of 59 ( 8.5% ) of genes in pham
- Manual Annotations of this start: 5 of 52
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Barnyard\_33 (H2), DrLupo\_35 (H2), Labelle\_33 (U), Madruga\_32 (U), Patience\_34 (U),

Start 48:

- Found in 9 of 59 ( 15.3% ) of genes in pham
- Manual Annotations of this start: 9 of 52
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Beyoncage\_22 (DG1), BiteSize\_22 (DG1), Djokovic\_22 (DG1), LilyPad\_23 (DG1), LittleFella\_24 (DG2), Madi\_22 (DG1), Sienna\_22 (DG1), Suzy\_22 (DG1), Terapin\_22 (DG1),

**Summary by clusters:**

There are 6 clusters represented in this pham: H2, H1, DG2, DG1, U, DV,

Info for manual annotations of cluster DG1:

- Start number 48 was manually annotated 8 times for cluster DG1.

Info for manual annotations of cluster DG2:

- Start number 48 was manually annotated 1 time for cluster DG2.

Info for manual annotations of cluster DV:

- Start number 2 was manually annotated 26 times for cluster DV.
- Start number 3 was manually annotated 2 times for cluster DV.
- Start number 4 was manually annotated 1 time for cluster DV.

Info for manual annotations of cluster H1:

- Start number 20 was manually annotated 9 times for cluster H1.

Info for manual annotations of cluster H2:

- Start number 21 was manually annotated 2 times for cluster H2.

Info for manual annotations of cluster U:

- Start number 21 was manually annotated 3 times for cluster U.

### **Gene Information:**

Gene: Alephilan\_24 Start: 17000, Stop: 23944, Start Num: 10

Candidate Starts for Alephilan\_24:

(1, 16718), (Start: 2 @16739 has 26 MA's), (10, 17000), (12, 17099), (14, 17135), (16, 17147), (25, 17246), (42, 17378), (46, 17405), (51, 17465), (53, 17474), (59, 17516), (64, 17528), (70, 17552), (72, 17558), (82, 17621), (88, 17675), (89, 17678), (106, 17831), (107, 17834), (121, 17936), (124, 17954), (128, 17981), (139, 18029), (142, 18038), (152, 18107), (157, 18143), (160, 18164), (161, 18176), (163, 18188), (164, 18203), (174, 18239), (186, 18314), (187, 18320), (203, 18419), (212, 18500), (214, 18509), (247, 18800), (252, 18842), (254, 18863), (255, 18872), (258, 18896), (259, 18902), (261, 18923), (278, 19103), (281, 19130), (285, 19163), (289, 19184), (302, 19286), (305, 19313), (312, 19364), (313, 19367), (317, 19391), (321, 19403), (325, 19418), (327, 19442), (334, 19520), (335, 19532), (348, 19607), (360, 19700), (363, 19757), (367, 19787), (381, 19976), (382, 19982), (387, 20054), (388, 20084), (392, 20129), (393, 20138), (398, 20180), (400, 20234), (405, 20276), (410, 20360), (416, 20483), (425, 20603), (431, 20654), (440, 20813), (457, 21104), (460, 21191), (471, 21332), (474, 21344), (481, 21428), (485, 21461), (497, 21590), (537, 22247), (538, 22280), (546, 22370), (568, 22658), (570, 22667), (572, 22676), (605, 23171), (615, 23243), (625, 23333), (627, 23351), (630, 23390), (633, 23432), (636, 23456), (641, 23486), (642, 23495), (647, 23525), (650, 23561), (655, 23579), (662, 23618), (665, 23642), (679, 23807), (680, 23831), (686, 23897), (688, 23909),

Gene: Alyssamiracle\_27 Start: 15546, Stop: 22754, Start Num: 3

Candidate Starts for Alyssamiracle\_27:

(Start: 3 @15546 has 2 MA's), (5, 15561), (7, 15693), (10, 15807), (12, 15906), (14, 15942), (16, 15954), (23, 16038), (25, 16053), (42, 16185), (46, 16212), (51, 16272), (53, 16281), (59, 16323), (64, 16335), (70, 16359), (72, 16365), (76, 16386), (82, 16428), (88, 16482), (89, 16485), (107, 16641), (121, 16743), (124, 16761), (128, 16788), (139, 16836), (142, 16845), (157, 16950), (160, 16971), (161, 16983), (163, 16995), (164, 17010), (174, 17046), (180, 17091), (186, 17121), (188, 17148), (203, 17226), (211, 17295), (212, 17307), (214, 17316), (245, 17595), (247, 17607), (252, 17649), (254, 17670), (255, 17679), (258, 17703), (259, 17709), (261, 17730), (271, 17814), (278, 17910), (281, 17937), (285, 17970), (296, 18063), (302, 18093), (312, 18171), (313, 18174), (317, 18198),

(321, 18210), (325, 18225), (327, 18249), (334, 18327), (335, 18339), (348, 18414), (350, 18417), (363, 18564), (365, 18579), (367, 18594), (377, 18693), (379, 18741), (381, 18789), (382, 18795), (384, 18840), (387, 18867), (398, 18993), (400, 19047), (405, 19089), (410, 19173), (414, 19260), (416, 19296), (425, 19416), (431, 19467), (440, 19626), (445, 19740), (457, 19917), (460, 20004), (471, 20145), (474, 20157), (481, 20241), (537, 21060), (538, 21093), (540, 21105), (546, 21183), (566, 21459), (569, 21471), (584, 21714), (591, 21765), (596, 21807), (615, 22053), (627, 22161), (630, 22200), (631, 22203), (633, 22242), (636, 22266), (641, 22296), (642, 22305), (643, 22317), (653, 22380), (655, 22389), (662, 22428), (665, 22452), (679, 22617), (680, 22641), (686, 22707), (688, 22719),

Gene: Apeppi\_24 Start: 16873, Stop: 24093, Start Num: 2

Candidate Starts for Apeppi\_24:

(1, 16852), (Start: 2 @16873 has 26 MA's), (8, 17068), (11, 17143), (13, 17248), (14, 17269), (15, 17272), (18, 17302), (19, 17311), (23, 17365), (29, 17428), (31, 17434), (45, 17530), (49, 17581), (53, 17608), (64, 17662), (65, 17671), (70, 17686), (84, 17764), (87, 17800), (91, 17824), (112, 18019), (117, 18049), (136, 18154), (152, 18244), (156, 18268), (157, 18280), (160, 18301), (161, 18313), (164, 18340), (177, 18409), (184, 18445), (186, 18451), (189, 18481), (197, 18526), (201, 18547), (203, 18556), (206, 18580), (212, 18637), (224, 18757), (245, 18925), (252, 18979), (254, 19000), (256, 19018), (258, 19033), (261, 19060), (271, 19144), (281, 19267), (302, 19423), (305, 19450), (308, 19471), (312, 19501), (319, 19534), (325, 19555), (327, 19579), (328, 19582), (329, 19585), (331, 19606), (332, 19618), (334, 19657), (338, 19693), (348, 19744), (359, 19804), (360, 19837), (366, 19915), (367, 19924), (381, 20113), (382, 20119), (387, 20191), (388, 20221), (393, 20275), (398, 20317), (405, 20413), (410, 20497), (416, 20620), (425, 20740), (431, 20791), (457, 21244), (458, 21274), (460, 21331), (464, 21406), (471, 21472), (474, 21484), (481, 21568), (485, 21601), (486, 21622), (492, 21691), (537, 22387), (546, 22507), (547, 22510), (568, 22807), (572, 22825), (591, 23104), (595, 23131), (605, 23320), (615, 23392), (624, 23479), (627, 23500), (630, 23539), (633, 23581), (641, 23635), (642, 23644), (643, 23656), (653, 23719), (655, 23728), (662, 23767), (665, 23791), (670, 23893), (679, 23956), (680, 23980), (685, 24037), (686, 24046), (688, 24058),

Gene: Avian\_25 Start: 15528, Stop: 22736, Start Num: 3

Candidate Starts for Avian\_25:

(Start: 3 @15528 has 2 MA's), (7, 15675), (10, 15789), (12, 15888), (14, 15924), (16, 15936), (23, 16020), (25, 16035), (42, 16167), (46, 16194), (51, 16254), (53, 16263), (59, 16305), (64, 16317), (70, 16341), (72, 16347), (76, 16368), (82, 16410), (88, 16464), (89, 16467), (107, 16623), (121, 16725), (124, 16743), (128, 16770), (139, 16818), (142, 16827), (157, 16932), (160, 16953), (161, 16965), (163, 16977), (164, 16992), (174, 17028), (180, 17073), (186, 17103), (188, 17130), (203, 17208), (211, 17277), (212, 17289), (214, 17298), (245, 17577), (247, 17589), (252, 17631), (254, 17652), (255, 17661), (258, 17685), (259, 17691), (261, 17712), (271, 17796), (278, 17892), (281, 17919), (285, 17952), (296, 18045), (302, 18075), (312, 18153), (313, 18156), (317, 18180), (321, 18192), (325, 18207), (327, 18231), (334, 18309), (335, 18321), (348, 18396), (350, 18399), (363, 18546), (365, 18561), (367, 18576), (377, 18675), (379, 18723), (381, 18771), (382, 18777), (384, 18822), (387, 18849), (398, 18975), (400, 19029), (405, 19071), (410, 19155), (414, 19242), (416, 19278), (425, 19398), (431, 19449), (440, 19608), (445, 19722), (457, 19899), (460, 19986), (471, 20127), (474, 20139), (481, 20223), (537, 21042), (538, 21075), (540, 21087), (546, 21165), (566, 21441), (569, 21453), (584, 21696), (591, 21747), (596, 21789), (615, 22035), (627, 22143), (630, 22182), (631, 22185), (633, 22224), (635, 22236), (641, 22278), (642, 22287), (643, 22299), (647, 22317), (655, 22371), (662, 22410), (665, 22434), (679, 22599), (680, 22623), (686, 22689), (688, 22701),

Gene: Barnyard\_33 Start: 18111, Stop: 24254, Start Num: 21

Candidate Starts for Barnyard\_33:

(Start: 21 @18111 has 5 MA's), (22, 18126), (27, 18180), (34, 18216), (36, 18237), (39, 18258), (41, 18267), (61, 18384), (70, 18405), (81, 18453), (93, 18555), (99, 18579), (104, 18600), (120, 18714), (121, 18723), (131, 18777), (140, 18807), (143, 18819), (148, 18843), (150, 18849), (154, 18870),

(158, 18903), (159, 18909), (169, 18951), (172, 18963), (173, 18966), (178, 19005), (181, 19020), (182, 19023), (185, 19041), (196, 19113), (208, 19203), (209, 19206), (219, 19299), (220, 19302), (222, 19335), (224, 19356), (230, 19383), (232, 19389), (239, 19461), (243, 19491), (247, 19536), (249, 19551), (253, 19590), (263, 19653), (264, 19662), (266, 19692), (268, 19707), (273, 19743), (274, 19773), (275, 19794), (279, 19839), (283, 19863), (284, 19872), (286, 19887), (289, 19905), (290, 19908), (299, 19989), (300, 19995), (303, 20016), (311, 20076), (336, 20253), (351, 20328), (361, 20448), (362, 20463), (366, 20487), (367, 20496), (368, 20499), (372, 20550), (378, 20646), (389, 20814), (390, 20823), (391, 20844), (402, 20976), (412, 21150), (414, 21174), (416, 21210), (417, 21222), (418, 21234), (419, 21276), (420, 21285), (429, 21366), (432, 21387), (434, 21423), (436, 21429), (438, 21447), (443, 21549), (448, 21630), (455, 21681), (458, 21711), (463, 21804), (465, 21843), (482, 21984), (485, 22005), (493, 22095), (494, 22107), (499, 22188), (508, 22275), (512, 22302), (514, 22341), (517, 22359), (523, 22413), (525, 22425), (531, 22566), (533, 22614), (535, 22638), (542, 22728), (549, 22830), (556, 22944), (558, 22956), (561, 22989), (567, 23043), (573, 23073), (580, 23172), (581, 23184), (583, 23232), (597, 23337), (602, 23367), (603, 23388), (608, 23487), (617, 23565), (619, 23586), (620, 23592), (622, 23604), (624, 23637), (629, 23688), (630, 23697), (632, 23733), (633, 23739), (645, 23823), (646, 23826), (653, 23880), (655, 23889), (657, 23901), (660, 23922), (662, 23931), (666, 23988), (669, 24036), (670, 24057), (672, 24078), (678, 24114), (682, 24153), (686, 24204), (687, 24207), (688, 24216),

Gene: Beckerton\_26 Start: 16772, Stop: 23095, Start Num: 20

Candidate Starts for Beckerton\_26:

(Start: 20 @16772 has 9 MA's), (26, 16835), (37, 16916), (39, 16934), (58, 17081), (62, 17090), (66, 17102), (71, 17120), (78, 17165), (85, 17207), (88, 17237), (90, 17249), (113, 17435), (116, 17444), (151, 17654), (161, 17729), (178, 17831), (181, 17846), (187, 17876), (190, 17909), (193, 17927), (199, 17957), (204, 17981), (205, 17990), (211, 18053), (214, 18074), (215, 18080), (217, 18104), (231, 18215), (233, 18233), (235, 18254), (237, 18281), (250, 18389), (263, 18482), (264, 18491), (268, 18536), (275, 18623), (283, 18692), (303, 18845), (316, 18932), (335, 19079), (341, 19121), (344, 19130), (346, 19142), (349, 19151), (378, 19475), (381, 19532), (389, 19643), (396, 19718), (403, 19808), (417, 20051), (422, 20135), (423, 20147), (437, 20267), (440, 20327), (443, 20375), (444, 20396), (448, 20456), (458, 20537), (467, 20687), (485, 20846), (486, 20867), (489, 20912), (498, 20966), (501, 21074), (515, 21170), (516, 21179), (520, 21209), (521, 21212), (541, 21527), (565, 21800), (567, 21809), (577, 21884), (578, 21917), (579, 21929), (580, 21938), (588, 22061), (600, 22181), (604, 22265), (610, 22331), (616, 22376), (618, 22403), (633, 22565), (634, 22568), (639, 22607), (641, 22619), (642, 22628), (666, 22835), (677, 22949), (682, 22994), (686, 23045), (687, 23048), (688, 23057), (689, 23072),

Gene: Beyoncage\_22 Start: 12549, Stop: 19319, Start Num: 48

Candidate Starts for Beyoncage\_22:

(Start: 48 @12549 has 9 MA's), (73, 12693), (84, 12765), (86, 12786), (97, 12885), (99, 12897), (101, 12903), (130, 13113), (133, 13122), (146, 13182), (153, 13239), (160, 13290), (174, 13365), (192, 13476), (195, 13494), (199, 13515), (228, 13758), (232, 13767), (234, 13800), (235, 13803), (237, 13830), (255, 13986), (270, 14097), (271, 14103), (277, 14190), (288, 14274), (293, 14307), (294, 14325), (300, 14370), (305, 14409), (307, 14421), (309, 14436), (312, 14457), (316, 14478), (318, 14487), (320, 14493), (324, 14502), (327, 14532), (343, 14676), (350, 14709), (355, 14724), (367, 14892), (372, 14937), (374, 14946), (376, 14967), (378, 15021), (392, 15231), (397, 15273), (401, 15345), (419, 15654), (424, 15702), (427, 15723), (435, 15831), (450, 16212), (451, 16287), (460, 16473), (475, 16704), (479, 16752), (484, 16803), (486, 16827), (487, 16836), (496, 16929), (507, 17094), (511, 17118), (513, 17133), (536, 17607), (543, 17685), (557, 17928), (560, 17964), (570, 18057), (582, 18216), (592, 18336), (594, 18351), (598, 18405), (604, 18519), (606, 18552), (607, 18561), (611, 18585), (615, 18609), (628, 18753), (629, 18759), (638, 18846), (642, 18873), (643, 18885), (647, 18903), (652, 18945), (659, 18978), (660, 18987), (662, 18996), (664, 19008), (669, 19104), (674, 19164), (675, 19167), (684, 19263), (685, 19266), (687, 19278), (688, 19287), (690, 19308),

Gene: BirthdayBoy\_28 Start: 17583, Stop: 24797, Start Num: 2

Candidate Starts for BirthdayBoy\_28:

(1, 17562), (Start: 2 @17583 has 26 MA's), (7, 17730), (10, 17844), (12, 17943), (14, 17979), (16, 17991), (25, 18090), (42, 18222), (53, 18318), (59, 18360), (64, 18372), (70, 18396), (72, 18402), (82, 18465), (88, 18519), (89, 18522), (106, 18675), (107, 18678), (121, 18780), (124, 18798), (128, 18825), (139, 18873), (142, 18882), (152, 18951), (157, 18987), (160, 19008), (161, 19020), (163, 19032), (164, 19047), (174, 19083), (186, 19158), (203, 19263), (211, 19332), (212, 19344), (214, 19353), (245, 19632), (247, 19644), (252, 19686), (254, 19707), (255, 19716), (258, 19740), (259, 19746), (261, 19767), (267, 19830), (271, 19851), (278, 19947), (281, 19974), (285, 20007), (312, 20208), (313, 20211), (317, 20235), (321, 20247), (325, 20262), (327, 20286), (334, 20364), (335, 20376), (348, 20451), (350, 20454), (363, 20601), (365, 20616), (367, 20631), (377, 20730), (379, 20778), (381, 20826), (382, 20832), (386, 20898), (387, 20904), (393, 20988), (398, 21030), (400, 21084), (405, 21126), (410, 21210), (416, 21333), (425, 21453), (431, 21504), (440, 21663), (445, 21777), (457, 21957), (459, 22017), (460, 22044), (464, 22119), (471, 22185), (474, 22197), (481, 22281), (485, 22314), (537, 23100), (538, 23133), (540, 23145), (546, 23223), (568, 23511), (572, 23529), (591, 23808), (615, 24096), (627, 24204), (630, 24243), (631, 24246), (633, 24285), (641, 24339), (642, 24348), (643, 24360), (647, 24378), (648, 24402), (655, 24432), (662, 24471), (665, 24495), (679, 24660), (680, 24684), (686, 24750), (688, 24762),

Gene: BiteSize\_22 Start: 12549, Stop: 19319, Start Num: 48

Candidate Starts for BiteSize\_22:

(Start: 48 @12549 has 9 MA's), (73, 12693), (84, 12765), (86, 12786), (97, 12885), (99, 12897), (101, 12903), (130, 13113), (133, 13122), (146, 13182), (153, 13239), (160, 13290), (174, 13365), (192, 13476), (195, 13494), (199, 13515), (228, 13758), (232, 13767), (234, 13800), (235, 13803), (237, 13830), (255, 13986), (270, 14097), (271, 14103), (277, 14190), (288, 14274), (293, 14307), (294, 14325), (300, 14370), (305, 14409), (307, 14421), (309, 14436), (312, 14457), (316, 14478), (318, 14487), (320, 14493), (324, 14502), (327, 14532), (343, 14676), (350, 14709), (355, 14724), (367, 14892), (372, 14937), (374, 14946), (376, 14967), (378, 15021), (392, 15231), (397, 15273), (401, 15345), (419, 15654), (424, 15702), (427, 15723), (435, 15831), (450, 16212), (451, 16287), (460, 16473), (475, 16704), (479, 16752), (484, 16803), (486, 16827), (487, 16836), (496, 16929), (507, 17094), (511, 17118), (513, 17133), (536, 17607), (543, 17685), (557, 17928), (560, 17964), (570, 18057), (582, 18216), (592, 18336), (594, 18351), (598, 18405), (604, 18519), (606, 18552), (607, 18561), (611, 18585), (615, 18609), (628, 18753), (629, 18759), (638, 18846), (642, 18873), (643, 18885), (647, 18903), (652, 18945), (659, 18978), (660, 18987), (662, 18996), (664, 19008), (669, 19104), (674, 19164), (675, 19167), (684, 19263), (685, 19266), (687, 19278), (688, 19287), (690, 19308),

Gene: Cborch11\_27 Start: 16234, Stop: 22557, Start Num: 20

Candidate Starts for Cborch11\_27:

(Start: 20 @16234 has 9 MA's), (26, 16297), (37, 16378), (39, 16396), (58, 16543), (62, 16552), (66, 16564), (78, 16627), (90, 16711), (113, 16897), (116, 16906), (122, 16963), (151, 17116), (161, 17191), (178, 17293), (181, 17308), (187, 17338), (190, 17371), (193, 17389), (199, 17419), (204, 17443), (205, 17452), (211, 17515), (214, 17536), (215, 17542), (217, 17566), (231, 17677), (233, 17695), (235, 17716), (237, 17743), (250, 17851), (263, 17944), (264, 17953), (268, 17998), (275, 18085), (283, 18154), (303, 18307), (316, 18394), (335, 18541), (341, 18583), (344, 18592), (346, 18604), (349, 18613), (378, 18937), (381, 18994), (389, 19105), (396, 19180), (403, 19270), (417, 19513), (423, 19609), (437, 19729), (440, 19789), (443, 19837), (444, 19858), (448, 19918), (458, 19999), (467, 20149), (485, 20308), (486, 20329), (489, 20374), (498, 20428), (501, 20536), (515, 20632), (516, 20641), (520, 20671), (521, 20674), (541, 20989), (565, 21262), (567, 21271), (577, 21346), (578, 21379), (579, 21391), (580, 21400), (588, 21523), (600, 21643), (604, 21727), (610, 21793), (616, 21838), (618, 21865), (633, 22027), (634, 22030), (639, 22069), (641, 22081), (642, 22090), (666, 22297), (677, 22411), (682, 22456), (686, 22507), (687, 22510), (688, 22519), (689,



22534),

Gene: Damien\_26 Start: 16235, Stop: 22558, Start Num: 20

Candidate Starts for Damien\_26:

(Start: 20 @16235 has 9 MA's), (26, 16298), (37, 16379), (39, 16397), (58, 16544), (62, 16553), (66, 16565), (78, 16628), (90, 16712), (113, 16898), (116, 16907), (151, 17117), (161, 17192), (178, 17294), (181, 17309), (187, 17339), (190, 17372), (193, 17390), (199, 17420), (204, 17444), (205, 17453), (211, 17516), (214, 17537), (215, 17543), (217, 17567), (231, 17678), (233, 17696), (235, 17717), (237, 17744), (250, 17852), (263, 17945), (264, 17954), (268, 17999), (275, 18086), (283, 18155), (301, 18293), (303, 18308), (316, 18395), (335, 18542), (341, 18584), (344, 18593), (346, 18605), (349, 18614), (378, 18938), (381, 18995), (389, 19106), (396, 19181), (403, 19271), (417, 19514), (422, 19598), (423, 19610), (437, 19730), (440, 19790), (443, 19838), (444, 19859), (448, 19919), (458, 20000), (467, 20150), (485, 20309), (486, 20330), (489, 20375), (498, 20429), (501, 20537), (515, 20633), (516, 20642), (520, 20672), (521, 20675), (541, 20990), (565, 21263), (567, 21272), (577, 21347), (578, 21380), (579, 21392), (580, 21401), (588, 21524), (600, 21644), (604, 21728), (610, 21794), (616, 21839), (618, 21866), (633, 22028), (634, 22031), (639, 22070), (641, 22082), (642, 22091), (666, 22298), (677, 22412), (682, 22457), (686, 22508), (687, 22511), (688, 22520), (689, 22535),

Gene: DaviePasture\_27 Start: 17352, Stop: 24563, Start Num: 2

Candidate Starts for DaviePasture\_27:

(1, 17331), (Start: 2 @17352 has 26 MA's), (7, 17499), (10, 17613), (12, 17712), (14, 17748), (16, 17760), (25, 17859), (42, 17991), (46, 18018), (47, 18021), (51, 18078), (53, 18087), (59, 18129), (64, 18141), (70, 18165), (72, 18171), (82, 18234), (88, 18288), (89, 18291), (106, 18444), (107, 18447), (121, 18549), (124, 18567), (128, 18594), (139, 18642), (142, 18651), (152, 18720), (157, 18756), (160, 18777), (161, 18789), (163, 18801), (164, 18816), (174, 18852), (180, 18897), (186, 18927), (203, 19032), (211, 19101), (212, 19113), (214, 19122), (247, 19413), (250, 19437), (252, 19455), (254, 19476), (255, 19485), (258, 19509), (259, 19515), (261, 19536), (271, 19620), (278, 19716), (281, 19743), (285, 19776), (289, 19797), (302, 19899), (312, 19977), (313, 19980), (317, 20004), (321, 20016), (325, 20031), (327, 20055), (334, 20133), (335, 20145), (348, 20220), (350, 20223), (363, 20370), (365, 20385), (367, 20400), (377, 20499), (379, 20547), (381, 20595), (382, 20601), (387, 20673), (393, 20757), (398, 20799), (400, 20853), (405, 20895), (410, 20979), (416, 21102), (425, 21222), (426, 21228), (431, 21273), (440, 21432), (445, 21546), (452, 21660), (457, 21714), (460, 21801), (461, 21810), (469, 21933), (471, 21942), (474, 21954), (481, 22038), (505, 22347), (537, 22857), (540, 22902), (546, 22977), (568, 23277), (572, 23295), (591, 23574), (596, 23616), (615, 23862), (627, 23970), (630, 24009), (631, 24012), (633, 24051), (641, 24105), (642, 24114), (643, 24126), (647, 24144), (648, 24168), (655, 24198), (662, 24237), (665, 24261), (679, 24426), (680, 24450), (686, 24516), (688, 24528),

Gene: Djokovic\_22 Start: 12549, Stop: 19319, Start Num: 48

Candidate Starts for Djokovic\_22:

(Start: 48 @12549 has 9 MA's), (73, 12693), (84, 12765), (86, 12786), (97, 12885), (99, 12897), (101, 12903), (130, 13113), (133, 13122), (146, 13182), (153, 13239), (160, 13290), (174, 13365), (192, 13476), (195, 13494), (199, 13515), (228, 13758), (232, 13767), (234, 13800), (235, 13803), (237, 13830), (255, 13986), (270, 14097), (271, 14103), (277, 14190), (288, 14274), (293, 14307), (294, 14325), (300, 14370), (305, 14409), (307, 14421), (309, 14436), (312, 14457), (316, 14478), (318, 14487), (320, 14493), (324, 14502), (327, 14532), (343, 14676), (350, 14709), (355, 14724), (367, 14892), (372, 14937), (374, 14946), (376, 14967), (378, 15021), (392, 15231), (397, 15273), (401, 15345), (419, 15654), (424, 15702), (427, 15723), (435, 15831), (450, 16212), (451, 16287), (460, 16473), (475, 16704), (479, 16752), (484, 16803), (486, 16827), (487, 16836), (496, 16929), (507, 17094), (511, 17118), (513, 17133), (536, 17607), (543, 17685), (557, 17928), (560, 17964), (570, 18057), (582, 18216), (592, 18336), (594, 18351), (598, 18405), (604, 18519), (606, 18552), (607, 18561), (611, 18585), (615, 18609), (628, 18753), (629, 18759), (638, 18846), (642, 18873), (643,

18885), (647, 18903), (652, 18945), (659, 18978), (660, 18987), (662, 18996), (664, 19008), (669, 19104), (674, 19164), (675, 19167), (684, 19263), (685, 19266), (687, 19278), (688, 19287), (690, 19308),

Gene: DoobyDoo\_26 Start: 16517, Stop: 23719, Start Num: 2

Candidate Starts for DoobyDoo\_26:

(1, 16496), (Start: 2 @16517 has 26 MA's), (7, 16664), (10, 16778), (12, 16877), (14, 16913), (16, 16925), (25, 17024), (42, 17156), (46, 17183), (47, 17186), (53, 17252), (59, 17294), (64, 17306), (70, 17330), (72, 17336), (82, 17399), (88, 17453), (89, 17456), (106, 17609), (107, 17612), (121, 17714), (124, 17732), (128, 17759), (139, 17807), (142, 17816), (152, 17885), (157, 17921), (160, 17942), (161, 17954), (163, 17966), (164, 17981), (174, 18017), (186, 18092), (187, 18098), (203, 18197), (211, 18266), (212, 18278), (214, 18287), (247, 18578), (252, 18620), (254, 18641), (255, 18650), (258, 18674), (259, 18680), (261, 18701), (267, 18764), (271, 18785), (278, 18881), (281, 18908), (285, 18941), (312, 19142), (313, 19145), (317, 19169), (321, 19181), (325, 19196), (327, 19220), (334, 19298), (335, 19310), (350, 19388), (363, 19535), (365, 19550), (367, 19565), (377, 19664), (379, 19712), (381, 19760), (382, 19766), (384, 19811), (387, 19838), (393, 19922), (398, 19964), (400, 20018), (405, 20060), (410, 20144), (416, 20267), (425, 20387), (431, 20438), (440, 20597), (445, 20711), (457, 20879), (460, 20966), (461, 20975), (471, 21107), (474, 21119), (481, 21203), (485, 21236), (505, 21512), (537, 22022), (538, 22055), (540, 22067), (546, 22145), (568, 22433), (570, 22442), (572, 22451), (591, 22730), (596, 22772), (615, 23018), (627, 23126), (630, 23165), (631, 23168), (633, 23207), (641, 23261), (642, 23270), (643, 23282), (647, 23300), (648, 23324), (655, 23354), (662, 23393), (665, 23417), (679, 23582), (680, 23606), (686, 23672), (688, 23684),

Gene: DrLupo\_35 Start: 18517, Stop: 24654, Start Num: 21

Candidate Starts for DrLupo\_35:

(Start: 21 @18517 has 5 MA's), (27, 18586), (34, 18622), (36, 18643), (39, 18664), (41, 18673), (52, 18748), (61, 18790), (70, 18811), (81, 18859), (93, 18961), (99, 18985), (104, 19006), (114, 19078), (120, 19120), (121, 19129), (131, 19183), (137, 19204), (141, 19216), (143, 19225), (147, 19240), (154, 19276), (157, 19297), (159, 19315), (178, 19411), (182, 19429), (183, 19435), (185, 19447), (208, 19609), (209, 19612), (211, 19630), (219, 19705), (220, 19708), (226, 19774), (232, 19795), (242, 19882), (247, 19942), (248, 19951), (251, 19975), (252, 19984), (263, 20059), (264, 20068), (266, 20098), (268, 20113), (273, 20149), (274, 20179), (275, 20200), (280, 20248), (284, 20278), (291, 20323), (295, 20365), (299, 20395), (300, 20401), (311, 20482), (312, 20488), (323, 20530), (332, 20605), (345, 20713), (351, 20734), (353, 20740), (359, 20782), (361, 20854), (362, 20869), (366, 20893), (367, 20902), (368, 20905), (378, 21052), (385, 21178), (389, 21220), (390, 21229), (391, 21250), (394, 21289), (400, 21367), (401, 21376), (412, 21556), (414, 21580), (416, 21616), (417, 21628), (418, 21640), (420, 21691), (431, 21787), (432, 21793), (442, 21925), (443, 21955), (445, 21997), (447, 22030), (458, 22117), (485, 22411), (489, 22477), (495, 22522), (502, 22642), (503, 22657), (518, 22762), (520, 22780), (523, 22813), (531, 22966), (535, 23038), (544, 23167), (551, 23272), (557, 23347), (558, 23356), (561, 23389), (562, 23401), (565, 23434), (567, 23443), (573, 23473), (578, 23551), (580, 23572), (581, 23584), (602, 23767), (612, 23917), (613, 23926), (617, 23965), (623, 24007), (624, 24037), (629, 24088), (630, 24097), (632, 24133), (633, 24139), (645, 24223), (655, 24289), (656, 24292), (657, 24301), (660, 24322), (666, 24388), (667, 24412), (669, 24436), (670, 24457), (672, 24478), (678, 24514), (683, 24559), (686, 24604), (687, 24607), (688, 24616),

Gene: DumpTruck\_26 Start: 16770, Stop: 24029, Start Num: 2

Candidate Starts for DumpTruck\_26:

(1, 16749), (Start: 2 @16770 has 26 MA's), (6, 16914), (7, 16917), (9, 16989), (14, 17166), (15, 17169), (16, 17178), (17, 17193), (18, 17199), (23, 17262), (24, 17271), (26, 17283), (29, 17325), (49, 17478), (51, 17496), (55, 17517), (59, 17547), (68, 17577), (70, 17583), (74, 17598), (79, 17640), (82, 17652), (84, 17661), (86, 17685), (88, 17706), (91, 17721), (92, 17739), (96, 17775), (100, 17802), (106, 17862), (118, 17964), (119, 17967), (121, 17988), (124, 18006), (127, 18021), (130, 18042),

(132, 18051), (138, 18087), (142, 18099), (149, 18153), (156, 18192), (157, 18204), (160, 18225), (164, 18264), (165, 18267), (168, 18279), (173, 18297), (175, 18321), (186, 18375), (200, 18465), (203, 18480), (212, 18561), (221, 18636), (227, 18699), (245, 18849), (252, 18903), (254, 18924), (255, 18933), (260, 18972), (263, 18990), (271, 19065), (285, 19221), (286, 19224), (312, 19431), (327, 19509), (334, 19587), (340, 19641), (352, 19683), (359, 19734), (366, 19845), (367, 19854), (371, 19896), (375, 19929), (377, 19953), (381, 20043), (382, 20049), (387, 20121), (388, 20151), (398, 20247), (405, 20343), (409, 20415), (410, 20427), (416, 20550), (425, 20670), (461, 21288), (470, 21414), (472, 21423), (473, 21429), (474, 21432), (476, 21462), (477, 21486), (479, 21495), (481, 21516), (486, 21570), (488, 21612), (506, 21831), (509, 21849), (528, 22125), (530, 22173), (532, 22224), (537, 22335), (538, 22368), (540, 22380), (546, 22458), (571, 22758), (572, 22761), (599, 23145), (615, 23328), (625, 23418), (641, 23571), (653, 23655), (659, 23685), (679, 23892), (680, 23916), (685, 23973),

Gene: Erutan\_27 Start: 17030, Stop: 24241, Start Num: 2

Candidate Starts for Erutan\_27:

(1, 17009), (Start: 2 @17030 has 26 MA's), (7, 17177), (10, 17291), (12, 17390), (14, 17426), (16, 17438), (25, 17537), (42, 17669), (46, 17696), (51, 17756), (53, 17765), (59, 17807), (64, 17819), (70, 17843), (72, 17849), (82, 17912), (84, 17921), (88, 17966), (89, 17969), (106, 18122), (107, 18125), (121, 18227), (124, 18245), (128, 18272), (139, 18320), (142, 18329), (152, 18398), (157, 18434), (160, 18455), (161, 18467), (163, 18479), (164, 18494), (174, 18530), (186, 18605), (203, 18710), (211, 18779), (212, 18791), (214, 18800), (247, 19091), (252, 19133), (254, 19154), (255, 19163), (258, 19187), (259, 19193), (261, 19214), (267, 19277), (271, 19298), (278, 19394), (281, 19421), (285, 19454), (296, 19547), (302, 19577), (312, 19655), (313, 19658), (317, 19682), (321, 19694), (325, 19709), (327, 19733), (334, 19811), (335, 19823), (350, 19901), (363, 20048), (365, 20063), (367, 20078), (377, 20177), (379, 20225), (381, 20273), (382, 20279), (387, 20351), (393, 20435), (398, 20477), (400, 20531), (405, 20573), (410, 20657), (416, 20780), (425, 20900), (431, 20951), (440, 21110), (445, 21224), (457, 21404), (460, 21491), (464, 21566), (471, 21632), (474, 21644), (481, 21728), (485, 21761), (486, 21782), (537, 22547), (538, 22580), (540, 22592), (546, 22670), (566, 22946), (569, 22958), (575, 23024), (595, 23279), (611, 23516), (615, 23540), (627, 23648), (630, 23687), (633, 23729), (640, 23774), (641, 23783), (642, 23792), (643, 23804), (653, 23867), (655, 23876), (662, 23915), (665, 23939), (679, 24104), (680, 24128), (685, 24185), (686, 24194), (688, 24206),

Gene: Fulcrum\_28 Start: 17563, Stop: 24765, Start Num: 2

Candidate Starts for Fulcrum\_28:

(1, 17542), (Start: 2 @17563 has 26 MA's), (7, 17710), (10, 17824), (12, 17923), (14, 17959), (16, 17971), (25, 18070), (42, 18202), (53, 18298), (59, 18340), (64, 18352), (70, 18376), (72, 18382), (82, 18445), (88, 18499), (89, 18502), (106, 18655), (107, 18658), (124, 18778), (128, 18805), (142, 18862), (152, 18931), (157, 18967), (160, 18988), (161, 19000), (163, 19012), (164, 19027), (174, 19063), (186, 19138), (187, 19144), (203, 19243), (211, 19312), (212, 19324), (214, 19333), (247, 19624), (252, 19666), (254, 19687), (255, 19696), (258, 19720), (259, 19726), (261, 19747), (267, 19810), (271, 19831), (278, 19927), (281, 19954), (285, 19987), (296, 20080), (302, 20110), (305, 20137), (312, 20188), (313, 20191), (314, 20197), (317, 20215), (321, 20227), (325, 20242), (327, 20266), (334, 20344), (335, 20356), (348, 20431), (350, 20434), (363, 20581), (365, 20596), (367, 20611), (377, 20710), (379, 20758), (381, 20806), (382, 20812), (387, 20884), (393, 20968), (398, 21010), (400, 21064), (405, 21106), (410, 21190), (416, 21313), (425, 21433), (431, 21484), (440, 21643), (445, 21757), (457, 21925), (459, 21985), (460, 22012), (461, 22021), (471, 22153), (474, 22165), (481, 22249), (505, 22558), (507, 22570), (537, 23068), (538, 23101), (540, 23113), (546, 23191), (568, 23479), (572, 23497), (591, 23776), (615, 24064), (627, 24172), (630, 24211), (631, 24214), (633, 24253), (641, 24307), (642, 24316), (643, 24328), (647, 24346), (648, 24370), (655, 24400), (662, 24439), (665, 24463), (679, 24628), (680, 24652), (686, 24718), (688, 24730),

Gene: GOATification\_28 Start: 17563, Stop: 24765, Start Num: 2

Candidate Starts for GOATification\_28:

(1, 17542), (Start: 2 @17563 has 26 MA's), (7, 17710), (10, 17824), (12, 17923), (14, 17959), (16, 17971), (25, 18070), (42, 18202), (53, 18298), (59, 18340), (64, 18352), (70, 18376), (72, 18382), (82, 18445), (88, 18499), (89, 18502), (106, 18655), (107, 18658), (124, 18778), (128, 18805), (142, 18862), (152, 18931), (157, 18967), (160, 18988), (161, 19000), (163, 19012), (164, 19027), (174, 19063), (186, 19138), (187, 19144), (203, 19243), (211, 19312), (212, 19324), (214, 19333), (247, 19624), (252, 19666), (254, 19687), (255, 19696), (258, 19720), (259, 19726), (261, 19747), (267, 19810), (271, 19831), (278, 19927), (281, 19954), (285, 19987), (296, 20080), (302, 20110), (305, 20137), (312, 20188), (313, 20191), (314, 20197), (317, 20215), (321, 20227), (325, 20242), (327, 20266), (334, 20344), (335, 20356), (348, 20431), (350, 20434), (363, 20581), (365, 20596), (367, 20611), (377, 20710), (379, 20758), (381, 20806), (382, 20812), (387, 20884), (393, 20968), (398, 21010), (400, 21064), (405, 21106), (410, 21190), (416, 21313), (425, 21433), (431, 21484), (440, 21643), (445, 21757), (457, 21925), (459, 21985), (460, 22012), (461, 22021), (471, 22153), (474, 22165), (481, 22249), (505, 22558), (507, 22570), (537, 23068), (538, 23101), (540, 23113), (546, 23191), (568, 23479), (572, 23497), (591, 23776), (615, 24064), (627, 24172), (630, 24211), (631, 24214), (633, 24253), (641, 24307), (642, 24316), (643, 24328), (647, 24346), (648, 24370), (655, 24400), (662, 24439), (665, 24463), (679, 24628), (680, 24652), (686, 24718), (688, 24730),

Gene: Genamy16\_27 Start: 15546, Stop: 22754, Start Num: 3

Candidate Starts for Genamy16\_27:

(Start: 3 @15546 has 2 MA's), (5, 15561), (7, 15693), (10, 15807), (12, 15906), (14, 15942), (16, 15954), (23, 16038), (25, 16053), (42, 16185), (46, 16212), (51, 16272), (53, 16281), (59, 16323), (64, 16335), (70, 16359), (72, 16365), (76, 16386), (82, 16428), (88, 16482), (89, 16485), (107, 16641), (121, 16743), (124, 16761), (128, 16788), (139, 16836), (142, 16845), (157, 16950), (160, 16971), (161, 16983), (163, 16995), (164, 17010), (174, 17046), (186, 17121), (188, 17148), (203, 17226), (211, 17295), (212, 17307), (214, 17316), (245, 17595), (247, 17607), (252, 17649), (254, 17670), (255, 17679), (258, 17703), (259, 17709), (261, 17730), (271, 17814), (278, 17910), (281, 17937), (285, 17970), (296, 18063), (302, 18093), (312, 18171), (313, 18174), (317, 18198), (321, 18210), (325, 18225), (327, 18249), (334, 18327), (335, 18339), (348, 18414), (350, 18417), (363, 18564), (365, 18579), (367, 18594), (377, 18693), (379, 18741), (381, 18789), (382, 18795), (384, 18840), (387, 18867), (398, 18993), (400, 19047), (405, 19089), (410, 19173), (414, 19260), (416, 19296), (425, 19416), (431, 19467), (440, 19626), (445, 19740), (457, 19917), (460, 20004), (471, 20145), (474, 20157), (481, 20241), (537, 21060), (538, 21093), (540, 21105), (546, 21183), (566, 21459), (569, 21471), (584, 21714), (591, 21765), (596, 21807), (615, 22053), (627, 22161), (630, 22200), (631, 22203), (633, 22242), (636, 22266), (641, 22296), (642, 22305), (643, 22317), (653, 22380), (655, 22389), (662, 22428), (665, 22452), (679, 22617), (680, 22641), (686, 22707), (688, 22719),

Gene: Gibbin\_28 Start: 17635, Stop: 24846, Start Num: 2

Candidate Starts for Gibbin\_28:

(1, 17614), (Start: 2 @17635 has 26 MA's), (7, 17782), (10, 17896), (12, 17995), (14, 18031), (16, 18043), (25, 18142), (42, 18274), (46, 18301), (47, 18304), (53, 18370), (59, 18412), (64, 18424), (70, 18448), (72, 18454), (82, 18517), (88, 18571), (89, 18574), (106, 18727), (107, 18730), (124, 18850), (128, 18877), (142, 18934), (152, 19003), (157, 19039), (160, 19060), (161, 19072), (163, 19084), (164, 19099), (174, 19135), (186, 19210), (203, 19315), (211, 19384), (212, 19396), (214, 19405), (247, 19696), (252, 19738), (254, 19759), (255, 19768), (258, 19792), (259, 19798), (261, 19819), (271, 19903), (278, 19999), (281, 20026), (285, 20059), (296, 20152), (302, 20182), (305, 20209), (312, 20260), (313, 20263), (317, 20287), (318, 20290), (321, 20299), (325, 20314), (327, 20338), (334, 20416), (335, 20428), (348, 20503), (350, 20506), (363, 20653), (365, 20668), (367, 20683), (377, 20782), (379, 20830), (381, 20878), (382, 20884), (387, 20956), (393, 21040), (398, 21082), (400, 21136), (405, 21178), (410, 21262), (416, 21385), (425, 21505), (431, 21556), (440, 21715), (445, 21829), (457, 21997), (460, 22084), (461, 22093), (471, 22225), (474, 22237), (481, 22321), (485, 22354), (505, 22630), (537, 23140), (540, 23185), (546, 23260), (568, 23560), (572, 23578), (591, 23857), (596, 23899), (615, 24145), (627, 24253), (630, 24292), (631, 24295), (633, 24334),

(641, 24388), (642, 24397), (643, 24409), (647, 24427), (648, 24451), (653, 24472), (655, 24481), (662, 24520), (665, 24544), (679, 24709), (680, 24733), (686, 24799), (688, 24811),

Gene: Gretellyn\_27 Start: 17897, Stop: 25108, Start Num: 2

Candidate Starts for Gretellyn\_27:

(1, 17876), (Start: 2 @17897 has 26 MA's), (7, 18044), (10, 18158), (12, 18257), (14, 18293), (16, 18305), (25, 18404), (42, 18536), (46, 18563), (47, 18566), (53, 18632), (59, 18674), (64, 18686), (70, 18710), (72, 18716), (82, 18779), (88, 18833), (89, 18836), (106, 18989), (107, 18992), (121, 19094), (124, 19112), (128, 19139), (139, 19187), (142, 19196), (152, 19265), (157, 19301), (160, 19322), (161, 19334), (163, 19346), (164, 19361), (174, 19397), (177, 19430), (180, 19442), (186, 19472), (203, 19577), (211, 19646), (212, 19658), (214, 19667), (247, 19958), (250, 19982), (252, 20000), (254, 20021), (255, 20030), (258, 20054), (259, 20060), (261, 20081), (271, 20165), (278, 20261), (281, 20288), (285, 20321), (289, 20342), (296, 20414), (302, 20444), (305, 20471), (312, 20522), (313, 20525), (317, 20549), (321, 20561), (325, 20576), (327, 20600), (334, 20678), (335, 20690), (348, 20765), (350, 20768), (363, 20915), (365, 20930), (367, 20945), (377, 21044), (379, 21092), (381, 21140), (382, 21146), (387, 21218), (393, 21302), (398, 21344), (400, 21398), (405, 21440), (410, 21524), (416, 21647), (425, 21767), (431, 21818), (440, 21977), (445, 22091), (457, 22259), (460, 22346), (461, 22355), (471, 22487), (474, 22499), (481, 22583), (505, 22892), (537, 23402), (540, 23447), (546, 23522), (568, 23822), (572, 23840), (591, 24119), (615, 24407), (627, 24515), (630, 24554), (631, 24557), (633, 24596), (641, 24650), (642, 24659), (643, 24671), (647, 24689), (648, 24713), (655, 24743), (662, 24782), (665, 24806), (679, 24971), (680, 24995), (686, 25061), (688, 25073),

Gene: Jalebi\_26 Start: 18073, Stop: 25275, Start Num: 2

Candidate Starts for Jalebi\_26:

(1, 18052), (Start: 2 @18073 has 26 MA's), (7, 18220), (10, 18334), (12, 18433), (14, 18469), (16, 18481), (25, 18580), (42, 18712), (46, 18739), (47, 18742), (51, 18799), (53, 18808), (59, 18850), (64, 18862), (70, 18886), (72, 18892), (76, 18913), (82, 18955), (88, 19009), (89, 19012), (106, 19165), (107, 19168), (121, 19270), (124, 19288), (128, 19315), (139, 19363), (142, 19372), (152, 19441), (157, 19477), (160, 19498), (161, 19510), (163, 19522), (164, 19537), (174, 19573), (186, 19648), (203, 19753), (211, 19822), (212, 19834), (214, 19843), (247, 20134), (250, 20158), (252, 20176), (254, 20197), (255, 20206), (258, 20230), (259, 20236), (261, 20257), (271, 20341), (278, 20437), (281, 20464), (285, 20497), (296, 20590), (302, 20620), (305, 20647), (312, 20698), (313, 20701), (317, 20725), (321, 20737), (325, 20752), (327, 20776), (334, 20854), (335, 20866), (348, 20941), (350, 20944), (363, 21091), (365, 21106), (367, 21121), (377, 21220), (379, 21268), (381, 21316), (382, 21322), (387, 21394), (393, 21478), (398, 21520), (400, 21574), (405, 21616), (410, 21700), (416, 21823), (425, 21943), (431, 21994), (440, 22153), (445, 22267), (457, 22435), (460, 22522), (461, 22531), (471, 22663), (474, 22675), (481, 22759), (485, 22792), (505, 23068), (537, 23578), (538, 23611), (540, 23623), (546, 23701), (568, 23989), (572, 24007), (591, 24286), (596, 24328), (615, 24574), (627, 24682), (630, 24721), (631, 24724), (633, 24763), (641, 24817), (642, 24826), (643, 24838), (647, 24856), (648, 24880), (655, 24910), (662, 24949), (665, 24973), (679, 25138), (680, 25162), (686, 25228), (688, 25240),

Gene: Jamemuya19\_25 Start: 15496, Stop: 22344, Start Num: 12

Candidate Starts for Jamemuya19\_25:

(1, 15115), (Start: 2 @15136 has 26 MA's), (7, 15283), (10, 15397), (12, 15496), (14, 15532), (16, 15544), (23, 15628), (25, 15643), (42, 15775), (46, 15802), (51, 15862), (53, 15871), (59, 15913), (64, 15925), (70, 15949), (72, 15955), (76, 15976), (82, 16018), (88, 16072), (89, 16075), (107, 16231), (121, 16333), (124, 16351), (128, 16378), (139, 16426), (142, 16435), (157, 16540), (160, 16561), (161, 16573), (163, 16585), (164, 16600), (174, 16636), (180, 16681), (186, 16711), (188, 16738), (203, 16816), (211, 16885), (212, 16897), (214, 16906), (245, 17185), (247, 17197), (252, 17239), (254, 17260), (255, 17269), (258, 17293), (259, 17299), (261, 17320), (271, 17404), (278, 17500), (281, 17527), (285, 17560), (296, 17653), (302, 17683), (312, 17761), (313, 17764), (317, 17788),

(321, 17800), (325, 17815), (327, 17839), (334, 17917), (335, 17929), (348, 18004), (350, 18007), (363, 18154), (365, 18169), (367, 18184), (377, 18283), (379, 18331), (381, 18379), (382, 18385), (384, 18430), (387, 18457), (398, 18583), (400, 18637), (405, 18679), (410, 18763), (414, 18850), (416, 18886), (425, 19006), (431, 19057), (440, 19216), (445, 19330), (457, 19507), (460, 19594), (471, 19735), (474, 19747), (481, 19831), (537, 20650), (538, 20683), (540, 20695), (546, 20773), (566, 21049), (569, 21061), (591, 21355), (596, 21397), (615, 21643), (627, 21751), (630, 21790), (631, 21793), (633, 21832), (636, 21856), (641, 21886), (642, 21895), (643, 21907), (653, 21970), (655, 21979), (662, 22018), (665, 22042), (679, 22207), (680, 22231), (686, 22297), (688, 22309),

Gene: Konstantine\_31 Start: 17436, Stop: 23759, Start Num: 20

Candidate Starts for Konstantine\_31:

(Start: 20 @17436 has 9 MA's), (26, 17499), (37, 17580), (39, 17598), (58, 17745), (62, 17754), (66, 17766), (78, 17829), (90, 17913), (113, 18099), (116, 18108), (151, 18318), (161, 18393), (178, 18495), (181, 18510), (187, 18540), (190, 18573), (193, 18591), (199, 18621), (200, 18624), (204, 18645), (205, 18654), (211, 18717), (214, 18738), (215, 18744), (217, 18768), (231, 18879), (233, 18897), (235, 18918), (237, 18945), (250, 19053), (263, 19146), (264, 19155), (268, 19200), (275, 19287), (283, 19356), (301, 19494), (303, 19509), (316, 19596), (335, 19743), (341, 19785), (344, 19794), (346, 19806), (349, 19815), (378, 20139), (381, 20196), (389, 20307), (396, 20382), (403, 20472), (417, 20715), (423, 20811), (437, 20931), (440, 20991), (443, 21039), (444, 21060), (448, 21120), (458, 21201), (467, 21351), (485, 21510), (486, 21531), (489, 21576), (498, 21630), (501, 21738), (515, 21834), (516, 21843), (520, 21873), (521, 21876), (541, 22191), (565, 22464), (567, 22473), (577, 22548), (578, 22581), (579, 22593), (580, 22602), (588, 22725), (600, 22845), (604, 22929), (610, 22995), (616, 23040), (618, 23067), (633, 23229), (634, 23232), (639, 23271), (641, 23283), (642, 23292), (666, 23499), (677, 23613), (682, 23658), (686, 23709), (687, 23712), (688, 23721), (689, 23736),

Gene: Labelle\_33 Start: 19567, Stop: 26214, Start Num: 21

Candidate Starts for Labelle\_33:

(Start: 21 @19567 has 5 MA's), (30, 19660), (32, 19672), (33, 19681), (38, 19714), (43, 19756), (56, 19861), (67, 19918), (69, 19924), (71, 19930), (80, 19987), (81, 19993), (83, 19999), (105, 20197), (109, 20227), (110, 20239), (115, 20275), (135, 20416), (153, 20512), (159, 20560), (174, 20638), (175, 20662), (181, 20695), (188, 20746), (194, 20779), (202, 20818), (212, 20908), (217, 20947), (218, 20959), (222, 21007), (226, 21040), (236, 21106), (244, 21175), (246, 21199), (248, 21217), (251, 21241), (262, 21322), (264, 21334), (275, 21469), (276, 21478), (286, 21562), (292, 21604), (302, 21682), (308, 21727), (331, 21883), (333, 21904), (335, 21946), (345, 22009), (361, 22165), (364, 22192), (367, 22213), (368, 22216), (370, 22255), (372, 22267), (380, 22402), (383, 22459), (392, 22585), (397, 22627), (399, 22678), (407, 22762), (416, 22933), (417, 22945), (424, 23053), (430, 23107), (432, 23119), (441, 23257), (468, 23620), (483, 23755), (490, 23839), (519, 24169), (522, 24202), (524, 24211), (552, 24721), (554, 24748), (559, 24796), (563, 24853), (576, 24952), (587, 25138), (603, 25324), (621, 25534), (633, 25675), (637, 25705), (651, 25807), (655, 25846), (658, 25861), (669, 25993), (671, 26017), (673, 26041), (681, 26101), (683, 26119), (684, 26152), (686, 26164), (687, 26167), (689, 26191),

Gene: Lambo\_27 Start: 17575, Stop: 24783, Start Num: 2

Candidate Starts for Lambo\_27:

(1, 17554), (Start: 2 @17575 has 26 MA's), (7, 17722), (10, 17836), (12, 17935), (14, 17971), (16, 17983), (25, 18082), (42, 18214), (51, 18301), (53, 18310), (59, 18352), (64, 18364), (70, 18388), (72, 18394), (82, 18457), (84, 18466), (88, 18511), (89, 18514), (106, 18667), (107, 18670), (121, 18772), (124, 18790), (128, 18817), (139, 18865), (142, 18874), (152, 18943), (157, 18979), (160, 19000), (161, 19012), (163, 19024), (164, 19039), (174, 19075), (186, 19150), (203, 19255), (211, 19324), (212, 19336), (214, 19345), (247, 19636), (252, 19678), (254, 19699), (255, 19708), (258, 19732), (259, 19738), (261, 19759), (271, 19843), (278, 19939), (281, 19966), (285, 19999), (296, 20092), (302, 20122), (305, 20149), (312, 20200), (313, 20203), (317, 20227), (321, 20239), (325, 20254),

(327, 20278), (334, 20356), (335, 20368), (348, 20443), (363, 20593), (365, 20608), (367, 20623), (377, 20722), (379, 20770), (381, 20818), (382, 20824), (387, 20896), (393, 20980), (398, 21022), (400, 21076), (405, 21118), (410, 21202), (416, 21325), (425, 21445), (431, 21496), (445, 21769), (457, 21946), (460, 22033), (464, 22108), (471, 22174), (474, 22186), (481, 22270), (485, 22303), (486, 22324), (537, 23089), (538, 23122), (540, 23134), (546, 23212), (564, 23476), (566, 23488), (569, 23500), (596, 23836), (615, 24082), (624, 24169), (627, 24190), (630, 24229), (633, 24271), (640, 24316), (641, 24325), (642, 24334), (643, 24346), (653, 24409), (655, 24418), (662, 24457), (665, 24481), (679, 24646), (680, 24670), (685, 24727), (686, 24736), (688, 24748),

Gene: Lila22\_26 Start: 17521, Stop: 24735, Start Num: 2

Candidate Starts for Lila22\_26:

(1, 17500), (Start: 2 @17521 has 26 MA's), (7, 17668), (10, 17782), (12, 17881), (14, 17917), (16, 17929), (25, 18028), (42, 18160), (53, 18256), (59, 18298), (64, 18310), (70, 18334), (72, 18340), (82, 18403), (88, 18457), (89, 18460), (106, 18613), (107, 18616), (121, 18718), (124, 18736), (128, 18763), (139, 18811), (142, 18820), (152, 18889), (157, 18925), (160, 18946), (161, 18958), (163, 18970), (164, 18985), (174, 19021), (186, 19096), (203, 19201), (211, 19270), (212, 19282), (214, 19291), (247, 19582), (252, 19624), (254, 19645), (255, 19654), (258, 19678), (259, 19684), (261, 19705), (271, 19789), (278, 19885), (281, 19912), (285, 19945), (289, 19966), (302, 20068), (312, 20146), (313, 20149), (317, 20173), (321, 20185), (325, 20200), (327, 20224), (334, 20302), (335, 20314), (350, 20392), (363, 20539), (365, 20554), (367, 20569), (377, 20668), (379, 20716), (381, 20764), (382, 20770), (387, 20842), (393, 20926), (398, 20968), (400, 21022), (405, 21064), (410, 21148), (416, 21271), (425, 21391), (431, 21442), (440, 21601), (445, 21715), (457, 21895), (460, 21982), (461, 21991), (471, 22123), (474, 22135), (481, 22219), (485, 22252), (505, 22528), (537, 23038), (538, 23071), (540, 23083), (546, 23161), (568, 23449), (572, 23467), (591, 23746), (596, 23788), (615, 24034), (627, 24142), (630, 24181), (631, 24184), (633, 24223), (641, 24277), (642, 24286), (643, 24298), (647, 24316), (648, 24340), (655, 24370), (662, 24409), (665, 24433), (676, 24583), (679, 24598), (680, 24622), (686, 24688), (688, 24700),

Gene: LilyPad\_23 Start: 13210, Stop: 19905, Start Num: 48

Candidate Starts for LilyPad\_23:

(44, 13186), (Start: 48 @13210 has 9 MA's), (54, 13279), (63, 13321), (73, 13354), (77, 13384), (84, 13426), (98, 13552), (99, 13558), (103, 13606), (125, 13744), (129, 13771), (130, 13777), (158, 13945), (160, 13954), (165, 13996), (174, 14029), (184, 14086), (192, 14140), (213, 14281), (223, 14386), (237, 14494), (238, 14497), (241, 14512), (249, 14593), (254, 14641), (256, 14659), (262, 14692), (266, 14734), (271, 14767), (277, 14854), (281, 14890), (282, 14893), (288, 14938), (289, 14944), (294, 14989), (304, 15061), (310, 15112), (312, 15121), (315, 15139), (318, 15151), (320, 15157), (327, 15196), (330, 15220), (337, 15295), (342, 15337), (343, 15340), (350, 15373), (355, 15388), (356, 15415), (357, 15424), (367, 15556), (369, 15577), (372, 15601), (376, 15631), (378, 15691), (379, 15700), (395, 15931), (397, 15943), (399, 15994), (400, 16006), (401, 16015), (411, 16186), (415, 16237), (417, 16258), (421, 16330), (422, 16342), (450, 16846), (459, 17026), (478, 17326), (481, 17350), (485, 17383), (486, 17404), (488, 17446), (496, 17506), (507, 17671), (511, 17695), (536, 18184), (539, 18226), (540, 18235), (543, 18262), (557, 18505), (560, 18541), (570, 18634), (586, 18874), (592, 18919), (594, 18934), (598, 18988), (606, 19135), (607, 19144), (611, 19168), (615, 19192), (629, 19342), (634, 19396), (642, 19456), (643, 19468), (647, 19486), (652, 19528), (655, 19540), (660, 19570), (662, 19579), (664, 19591), (669, 19687), (675, 19750), (684, 19846), (685, 19849), (687, 19861), (690, 19891),

Gene: LittleFella\_24 Start: 15083, Stop: 21778, Start Num: 48

Candidate Starts for LittleFella\_24:

(Start: 48 @15083 has 9 MA's), (60, 15185), (63, 15194), (73, 15227), (84, 15299), (86, 15320), (95, 15404), (97, 15419), (99, 15431), (101, 15437), (112, 15548), (123, 15602), (130, 15647), (133, 15656), (145, 15710), (146, 15716), (149, 15752), (155, 15782), (160, 15824), (162, 15845), (166, 15869), (168, 15878), (179, 15929), (191, 16004), (192, 16010), (195, 16028), (201, 16058), (237,

16364), (251, 16481), (257, 16538), (270, 16631), (277, 16724), (281, 16760), (286, 16796), (287, 16805), (288, 16808), (289, 16814), (291, 16826), (294, 16859), (298, 16895), (312, 16991), (315, 17009), (316, 17012), (320, 17027), (322, 17033), (324, 17036), (327, 17066), (337, 17165), (342, 17207), (343, 17210), (355, 17258), (356, 17285), (357, 17294), (358, 17303), (367, 17426), (372, 17471), (376, 17501), (378, 17558), (389, 17726), (397, 17810), (399, 17861), (401, 17882), (406, 17924), (413, 18062), (428, 18260), (439, 18386), (446, 18596), (449, 18662), (454, 18824), (462, 18989), (479, 19229), (480, 19238), (482, 19262), (486, 19304), (487, 19313), (496, 19406), (506, 19565), (507, 19571), (510, 19589), (511, 19595), (536, 20078), (543, 20156), (557, 20399), (570, 20528), (592, 20804), (594, 20819), (606, 21011), (607, 21020), (611, 21044), (615, 21068), (628, 21212), (629, 21218), (634, 21272), (643, 21344), (647, 21362), (652, 21404), (660, 21446), (662, 21455), (669, 21563), (674, 21623), (684, 21722), (685, 21725), (687, 21737), (690, 21767),

Gene: LuckyLeo\_26 Start: 16873, Stop: 24093, Start Num: 2

Candidate Starts for LuckyLeo\_26:

(1, 16852), (Start: 2 @16873 has 26 MA's), (8, 17068), (11, 17143), (13, 17248), (14, 17269), (15, 17272), (18, 17302), (19, 17311), (23, 17365), (29, 17428), (31, 17434), (45, 17530), (49, 17581), (53, 17608), (64, 17662), (65, 17671), (70, 17686), (84, 17764), (87, 17800), (91, 17824), (112, 18019), (117, 18049), (136, 18154), (152, 18244), (156, 18268), (157, 18280), (160, 18301), (161, 18313), (164, 18340), (177, 18409), (184, 18445), (186, 18451), (189, 18481), (197, 18526), (201, 18547), (203, 18556), (206, 18580), (212, 18637), (224, 18757), (245, 18925), (252, 18979), (254, 19000), (256, 19018), (258, 19033), (261, 19060), (271, 19144), (281, 19267), (302, 19423), (305, 19450), (308, 19471), (312, 19501), (319, 19534), (325, 19555), (327, 19579), (328, 19582), (329, 19585), (331, 19606), (332, 19618), (334, 19657), (338, 19693), (348, 19744), (359, 19804), (360, 19837), (366, 19915), (367, 19924), (381, 20113), (382, 20119), (387, 20191), (388, 20221), (393, 20275), (398, 20317), (405, 20413), (410, 20497), (416, 20620), (425, 20740), (431, 20791), (457, 21244), (458, 21274), (460, 21331), (464, 21406), (471, 21472), (474, 21484), (481, 21568), (485, 21601), (486, 21622), (492, 21691), (537, 22387), (546, 22507), (547, 22510), (568, 22807), (572, 22825), (591, 23104), (595, 23131), (605, 23320), (615, 23392), (624, 23479), (627, 23500), (630, 23539), (633, 23581), (641, 23635), (642, 23644), (643, 23656), (653, 23719), (655, 23728), (662, 23767), (665, 23791), (670, 23893), (679, 23956), (680, 23980), (685, 24037), (686, 24046), (688, 24058),

Gene: Madi\_22 Start: 12549, Stop: 19319, Start Num: 48

Candidate Starts for Madi\_22:

(Start: 48 @12549 has 9 MA's), (73, 12693), (84, 12765), (86, 12786), (97, 12885), (99, 12897), (101, 12903), (125, 13080), (130, 13113), (133, 13122), (146, 13182), (153, 13239), (160, 13290), (174, 13365), (192, 13476), (195, 13494), (199, 13515), (228, 13758), (232, 13767), (234, 13800), (235, 13803), (237, 13830), (255, 13986), (270, 14097), (271, 14103), (277, 14190), (288, 14274), (293, 14307), (294, 14325), (300, 14370), (305, 14409), (307, 14421), (309, 14436), (312, 14457), (316, 14478), (318, 14487), (320, 14493), (324, 14502), (327, 14532), (343, 14676), (350, 14709), (355, 14724), (367, 14892), (372, 14937), (374, 14946), (376, 14967), (378, 15021), (392, 15231), (397, 15273), (401, 15345), (419, 15654), (424, 15702), (427, 15723), (435, 15831), (450, 16212), (451, 16287), (460, 16473), (475, 16704), (479, 16752), (484, 16803), (486, 16827), (487, 16836), (496, 16929), (507, 17094), (511, 17118), (513, 17133), (536, 17607), (539, 17649), (543, 17685), (557, 17928), (560, 17964), (570, 18057), (582, 18216), (592, 18336), (594, 18351), (598, 18405), (604, 18519), (606, 18552), (607, 18561), (611, 18585), (615, 18609), (628, 18753), (629, 18759), (638, 18846), (642, 18873), (643, 18885), (647, 18903), (652, 18945), (659, 18978), (660, 18987), (662, 18996), (664, 19008), (669, 19104), (674, 19164), (675, 19167), (684, 19263), (685, 19266), (687, 19278), (688, 19287), (690, 19308),

Gene: Madruga\_32 Start: 19236, Stop: 25883, Start Num: 21

Candidate Starts for Madruga\_32:

(Start: 21 @19236 has 5 MA's), (30, 19329), (32, 19341), (33, 19350), (35, 19371), (38, 19383), (43, 19425), (56, 19530), (67, 19587), (69, 19593), (71, 19599), (80, 19656), (81, 19662), (83, 19668),



(105, 19866), (109, 19896), (110, 19908), (115, 19944), (135, 20085), (153, 20181), (159, 20229), (174, 20307), (175, 20331), (181, 20364), (188, 20415), (194, 20448), (202, 20487), (212, 20577), (217, 20616), (218, 20628), (222, 20676), (226, 20709), (236, 20775), (244, 20844), (246, 20868), (248, 20886), (251, 20910), (262, 20991), (264, 21003), (275, 21138), (276, 21147), (286, 21231), (292, 21273), (302, 21351), (308, 21396), (331, 21552), (333, 21573), (335, 21615), (345, 21678), (361, 21834), (364, 21861), (367, 21882), (368, 21885), (370, 21924), (372, 21936), (380, 22071), (383, 22128), (392, 22254), (397, 22296), (399, 22347), (407, 22431), (416, 22602), (417, 22614), (430, 22776), (432, 22788), (441, 22926), (468, 23289), (483, 23424), (490, 23508), (519, 23838), (522, 23871), (524, 23880), (527, 23934), (552, 24390), (554, 24417), (559, 24465), (563, 24522), (576, 24621), (587, 24807), (603, 24993), (621, 25203), (633, 25344), (637, 25374), (651, 25476), (655, 25515), (658, 25530), (669, 25662), (671, 25686), (673, 25710), (681, 25770), (683, 25788), (684, 25821), (686, 25833), (687, 25836), (689, 25860),

Gene: Megatron06\_28 Start: 16768, Stop: 23091, Start Num: 20

Candidate Starts for Megatron06\_28:

(Start: 20 @16768 has 9 MA's), (26, 16831), (37, 16912), (39, 16930), (58, 17077), (62, 17086), (66, 17098), (78, 17161), (90, 17245), (113, 17431), (116, 17440), (122, 17497), (151, 17650), (161, 17725), (178, 17827), (181, 17842), (187, 17872), (190, 17905), (193, 17923), (199, 17953), (204, 17977), (205, 17986), (211, 18049), (214, 18070), (215, 18076), (217, 18100), (231, 18211), (233, 18229), (235, 18250), (237, 18277), (250, 18385), (263, 18478), (264, 18487), (268, 18532), (275, 18619), (283, 18688), (303, 18841), (316, 18928), (335, 19075), (341, 19117), (344, 19126), (346, 19138), (349, 19147), (378, 19471), (381, 19528), (396, 19714), (403, 19804), (417, 20047), (422, 20131), (423, 20143), (437, 20263), (440, 20323), (443, 20371), (444, 20392), (448, 20452), (458, 20533), (467, 20683), (476, 20761), (485, 20842), (486, 20863), (489, 20908), (498, 20962), (501, 21070), (515, 21166), (516, 21175), (520, 21205), (521, 21208), (541, 21523), (565, 21796), (567, 21805), (577, 21880), (578, 21913), (579, 21925), (580, 21934), (588, 22057), (600, 22177), (604, 22261), (610, 22327), (616, 22372), (618, 22399), (633, 22561), (634, 22564), (639, 22603), (641, 22615), (642, 22624), (666, 22831), (677, 22945), (682, 22990), (686, 23041), (687, 23044), (688, 23053), (689, 23068),

Gene: Mima20\_27 Start: 17523, Stop: 24464, Start Num: 10

Candidate Starts for Mima20\_27:

(1, 17241), (Start: 2 @17262 has 26 MA's), (7, 17409), (10, 17523), (12, 17622), (14, 17658), (16, 17670), (25, 17769), (42, 17901), (46, 17928), (47, 17931), (53, 17997), (59, 18039), (64, 18051), (70, 18075), (72, 18081), (82, 18144), (88, 18198), (89, 18201), (106, 18354), (107, 18357), (121, 18459), (124, 18477), (128, 18504), (142, 18561), (152, 18630), (157, 18666), (160, 18687), (161, 18699), (163, 18711), (164, 18726), (174, 18762), (186, 18837), (203, 18942), (211, 19011), (212, 19023), (214, 19032), (247, 19323), (252, 19365), (254, 19386), (255, 19395), (258, 19419), (259, 19425), (261, 19446), (271, 19530), (278, 19626), (281, 19653), (285, 19686), (296, 19779), (302, 19809), (305, 19836), (312, 19887), (313, 19890), (317, 19914), (321, 19926), (325, 19941), (327, 19965), (334, 20043), (335, 20055), (350, 20133), (363, 20280), (365, 20295), (367, 20310), (377, 20409), (379, 20457), (381, 20505), (382, 20511), (384, 20556), (387, 20583), (393, 20667), (398, 20709), (400, 20763), (405, 20805), (410, 20889), (416, 21012), (425, 21132), (431, 21183), (440, 21342), (445, 21456), (457, 21624), (460, 21711), (471, 21852), (474, 21864), (481, 21948), (485, 21981), (505, 22257), (537, 22767), (538, 22800), (540, 22812), (546, 22890), (568, 23178), (572, 23196), (591, 23475), (596, 23517), (615, 23763), (627, 23871), (630, 23910), (631, 23913), (633, 23952), (641, 24006), (642, 24015), (643, 24027), (647, 24045), (648, 24069), (662, 24138), (665, 24162), (679, 24327), (680, 24351), (686, 24417), (688, 24429),

Gene: MoiGyank\_29 Start: 17934, Stop: 25145, Start Num: 2

Candidate Starts for MoiGyank\_29:

(1, 17913), (Start: 2 @17934 has 26 MA's), (7, 18081), (10, 18195), (12, 18294), (14, 18330), (16, 18342), (25, 18441), (42, 18573), (46, 18600), (47, 18603), (53, 18669), (59, 18711), (64, 18723), (70,

18747), (72, 18753), (82, 18816), (88, 18870), (89, 18873), (106, 19026), (107, 19029), (124, 19149), (128, 19176), (142, 19233), (152, 19302), (157, 19338), (160, 19359), (161, 19371), (163, 19383), (164, 19398), (174, 19434), (186, 19509), (203, 19614), (211, 19683), (212, 19695), (214, 19704), (247, 19995), (252, 20037), (254, 20058), (255, 20067), (258, 20091), (259, 20097), (261, 20118), (271, 20202), (278, 20298), (281, 20325), (285, 20358), (296, 20451), (302, 20481), (305, 20508), (312, 20559), (313, 20562), (317, 20586), (321, 20598), (325, 20613), (327, 20637), (334, 20715), (335, 20727), (348, 20802), (350, 20805), (363, 20952), (365, 20967), (367, 20982), (377, 21081), (379, 21129), (381, 21177), (382, 21183), (387, 21255), (393, 21339), (398, 21381), (400, 21435), (405, 21477), (410, 21561), (416, 21684), (425, 21804), (431, 21855), (440, 22014), (445, 22128), (457, 22296), (460, 22383), (461, 22392), (469, 22515), (471, 22524), (474, 22536), (481, 22620), (505, 22929), (537, 23439), (540, 23484), (546, 23559), (568, 23859), (572, 23877), (591, 24156), (596, 24198), (615, 24444), (627, 24552), (630, 24591), (631, 24594), (633, 24633), (641, 24687), (642, 24696), (643, 24708), (647, 24726), (648, 24750), (653, 24771), (655, 24780), (662, 24819), (665, 24843), (679, 25008), (680, 25032), (686, 25098), (688, 25110),

Gene: NorManre\_28 Start: 17141, Stop: 24352, Start Num: 2

Candidate Starts for NorManre\_28:

(1, 17120), (Start: 2 @17141 has 26 MA's), (7, 17288), (10, 17402), (12, 17501), (14, 17537), (16, 17549), (23, 17633), (25, 17648), (42, 17780), (46, 17807), (47, 17810), (53, 17876), (59, 17918), (64, 17930), (70, 17954), (72, 17960), (82, 18023), (88, 18077), (89, 18080), (106, 18233), (107, 18236), (124, 18356), (128, 18383), (139, 18431), (142, 18440), (152, 18509), (157, 18545), (160, 18566), (161, 18578), (163, 18590), (164, 18605), (174, 18641), (177, 18674), (180, 18686), (186, 18716), (203, 18821), (211, 18890), (212, 18902), (214, 18911), (226, 19034), (247, 19202), (250, 19226), (252, 19244), (254, 19265), (255, 19274), (258, 19298), (259, 19304), (261, 19325), (271, 19409), (278, 19505), (281, 19532), (285, 19565), (296, 19658), (302, 19688), (305, 19715), (312, 19766), (313, 19769), (317, 19793), (321, 19805), (325, 19820), (327, 19844), (334, 19922), (335, 19934), (348, 20009), (350, 20012), (363, 20159), (365, 20174), (367, 20189), (377, 20288), (379, 20336), (381, 20384), (382, 20390), (387, 20462), (393, 20546), (398, 20588), (400, 20642), (405, 20684), (410, 20768), (416, 20891), (425, 21011), (431, 21062), (440, 21221), (445, 21335), (457, 21503), (460, 21590), (461, 21599), (471, 21731), (474, 21743), (481, 21827), (485, 21860), (505, 22136), (537, 22646), (540, 22691), (546, 22766), (568, 23066), (572, 23084), (591, 23363), (596, 23405), (615, 23651), (627, 23759), (630, 23798), (631, 23801), (633, 23840), (641, 23894), (642, 23903), (643, 23915), (647, 23933), (648, 23957), (655, 23987), (662, 24026), (665, 24050), (679, 24215), (680, 24239), (686, 24305), (688, 24317),

Gene: NovaSharks\_26 Start: 15136, Stop: 22344, Start Num: 2

Candidate Starts for NovaSharks\_26:

(1, 15115), (Start: 2 @15136 has 26 MA's), (7, 15283), (10, 15397), (12, 15496), (14, 15532), (16, 15544), (23, 15628), (25, 15643), (42, 15775), (46, 15802), (51, 15862), (53, 15871), (59, 15913), (64, 15925), (70, 15949), (72, 15955), (76, 15976), (82, 16018), (88, 16072), (89, 16075), (107, 16231), (121, 16333), (124, 16351), (128, 16378), (139, 16426), (142, 16435), (157, 16540), (160, 16561), (161, 16573), (163, 16585), (164, 16600), (174, 16636), (180, 16681), (186, 16711), (188, 16738), (203, 16816), (211, 16885), (212, 16897), (214, 16906), (245, 17185), (247, 17197), (252, 17239), (254, 17260), (255, 17269), (258, 17293), (259, 17299), (261, 17320), (271, 17404), (278, 17500), (281, 17527), (285, 17560), (296, 17653), (302, 17683), (312, 17761), (313, 17764), (317, 17788), (321, 17800), (325, 17815), (327, 17839), (334, 17917), (335, 17929), (348, 18004), (350, 18007), (363, 18154), (365, 18169), (367, 18184), (377, 18283), (379, 18331), (381, 18379), (382, 18385), (384, 18430), (387, 18457), (398, 18583), (400, 18637), (405, 18679), (410, 18763), (414, 18850), (416, 18886), (425, 19006), (431, 19057), (440, 19216), (445, 19330), (457, 19507), (460, 19594), (471, 19735), (474, 19747), (481, 19831), (537, 20650), (538, 20683), (540, 20695), (546, 20773), (566, 21049), (569, 21061), (584, 21304), (591, 21355), (596, 21397), (615, 21643), (627, 21751), (630, 21790), (631, 21793), (633, 21832), (636, 21856), (641, 21886), (642, 21895), (643, 21907), (653, 21970), (655, 21979), (662, 22018), (665, 22042), (679, 22207), (680, 22231), (686, 22297),

(688, 22309),

Gene: Oaker\_26 Start: 16492, Stop: 22815, Start Num: 20

Candidate Starts for Oaker\_26:

(Start: 20 @16492 has 9 MA's), (26, 16555), (37, 16636), (39, 16654), (58, 16801), (62, 16810), (66, 16822), (78, 16885), (85, 16927), (90, 16969), (113, 17155), (116, 17164), (151, 17374), (161, 17449), (178, 17551), (181, 17566), (187, 17596), (190, 17629), (193, 17647), (199, 17677), (204, 17701), (205, 17710), (211, 17773), (214, 17794), (215, 17800), (217, 17824), (231, 17935), (233, 17953), (235, 17974), (237, 18001), (250, 18109), (263, 18202), (264, 18211), (268, 18256), (275, 18343), (283, 18412), (301, 18550), (303, 18565), (316, 18652), (335, 18799), (341, 18841), (344, 18850), (346, 18862), (349, 18871), (378, 19195), (381, 19252), (389, 19363), (396, 19438), (403, 19528), (417, 19771), (422, 19855), (423, 19867), (437, 19987), (440, 20047), (443, 20095), (444, 20116), (448, 20176), (458, 20257), (467, 20407), (485, 20566), (486, 20587), (489, 20632), (498, 20686), (501, 20794), (515, 20890), (516, 20899), (520, 20929), (521, 20932), (541, 21247), (565, 21520), (567, 21529), (577, 21604), (578, 21637), (579, 21649), (580, 21658), (588, 21781), (600, 21901), (604, 21985), (610, 22051), (616, 22096), (618, 22123), (633, 22285), (634, 22288), (639, 22327), (641, 22339), (642, 22348), (666, 22555), (677, 22669), (682, 22714), (686, 22765), (687, 22768), (688, 22777), (689, 22792),

Gene: OtterstedtS21\_27 Start: 17219, Stop: 24430, Start Num: 2

Candidate Starts for OtterstedtS21\_27:

(1, 17198), (Start: 2 @17219 has 26 MA's), (7, 17366), (10, 17480), (12, 17579), (14, 17615), (16, 17627), (25, 17726), (42, 17858), (46, 17885), (47, 17888), (53, 17954), (59, 17996), (64, 18008), (70, 18032), (72, 18038), (82, 18101), (88, 18155), (89, 18158), (106, 18311), (107, 18314), (121, 18416), (124, 18434), (128, 18461), (139, 18509), (142, 18518), (152, 18587), (157, 18623), (160, 18644), (161, 18656), (163, 18668), (164, 18683), (174, 18719), (186, 18794), (203, 18899), (211, 18968), (212, 18980), (214, 18989), (247, 19280), (252, 19322), (254, 19343), (255, 19352), (258, 19376), (259, 19382), (261, 19403), (271, 19487), (278, 19583), (281, 19610), (285, 19643), (289, 19664), (296, 19736), (302, 19766), (305, 19793), (312, 19844), (313, 19847), (317, 19871), (321, 19883), (325, 19898), (327, 19922), (334, 20000), (335, 20012), (363, 20237), (365, 20252), (367, 20267), (377, 20366), (379, 20414), (381, 20462), (382, 20468), (387, 20540), (393, 20624), (398, 20666), (400, 20720), (405, 20762), (410, 20846), (416, 20969), (425, 21089), (431, 21140), (440, 21299), (445, 21413), (457, 21581), (460, 21668), (461, 21677), (469, 21800), (471, 21809), (474, 21821), (481, 21905), (505, 22214), (537, 22724), (540, 22769), (546, 22844), (568, 23144), (572, 23162), (591, 23441), (596, 23483), (615, 23729), (627, 23837), (630, 23876), (631, 23879), (633, 23918), (641, 23972), (642, 23981), (643, 23993), (647, 24011), (648, 24035), (653, 24056), (655, 24065), (662, 24104), (665, 24128), (679, 24293), (680, 24317), (686, 24383), (688, 24395),

Gene: ParvusTarda\_27 Start: 16701, Stop: 23912, Start Num: 2

Candidate Starts for ParvusTarda\_27:

(1, 16680), (Start: 2 @16701 has 26 MA's), (7, 16848), (10, 16962), (12, 17061), (14, 17097), (16, 17109), (25, 17208), (42, 17340), (46, 17367), (51, 17427), (53, 17436), (59, 17478), (64, 17490), (70, 17514), (72, 17520), (82, 17583), (84, 17592), (88, 17637), (89, 17640), (106, 17793), (107, 17796), (124, 17916), (128, 17943), (142, 18000), (152, 18069), (157, 18105), (160, 18126), (161, 18138), (163, 18150), (164, 18165), (174, 18201), (186, 18276), (203, 18381), (211, 18450), (212, 18462), (214, 18471), (247, 18762), (252, 18804), (254, 18825), (255, 18834), (258, 18858), (259, 18864), (261, 18885), (267, 18948), (271, 18969), (278, 19065), (281, 19092), (285, 19125), (296, 19218), (302, 19248), (305, 19275), (312, 19326), (313, 19329), (314, 19335), (317, 19353), (321, 19365), (325, 19380), (327, 19404), (334, 19482), (335, 19494), (348, 19569), (350, 19572), (363, 19719), (365, 19734), (367, 19749), (377, 19848), (379, 19896), (381, 19944), (382, 19950), (387, 20022), (393, 20106), (398, 20148), (400, 20202), (405, 20244), (410, 20328), (416, 20451), (425, 20571), (431, 20622), (440, 20781), (445, 20895), (457, 21072), (460, 21159), (464, 21234), (471, 21300), (474, 21312), (481, 21396), (485, 21429), (486, 21450), (537, 22215), (538, 22248), (540, 22260),

(546, 22338), (568, 22626), (572, 22644), (596, 22965), (615, 23211), (624, 23298), (627, 23319), (630, 23358), (633, 23400), (640, 23445), (641, 23454), (642, 23463), (643, 23475), (653, 23538), (655, 23547), (662, 23586), (665, 23610), (679, 23775), (680, 23799), (686, 23865), (688, 23877),

Gene: Patience\_34 Start: 20117, Stop: 26764, Start Num: 21

Candidate Starts for Patience\_34:

(Start: 21 @20117 has 5 MA's), (30, 20210), (32, 20222), (33, 20231), (35, 20252), (38, 20264), (43, 20306), (56, 20411), (67, 20468), (69, 20474), (71, 20480), (80, 20537), (81, 20543), (83, 20549), (105, 20747), (109, 20777), (110, 20789), (115, 20825), (135, 20966), (153, 21062), (159, 21110), (174, 21188), (175, 21212), (181, 21245), (188, 21296), (194, 21329), (202, 21368), (212, 21458), (217, 21497), (218, 21509), (222, 21557), (226, 21590), (236, 21656), (244, 21725), (246, 21749), (248, 21767), (251, 21791), (262, 21872), (264, 21884), (275, 22019), (276, 22028), (286, 22112), (302, 22232), (308, 22277), (331, 22433), (333, 22454), (335, 22496), (345, 22559), (361, 22715), (364, 22742), (367, 22763), (368, 22766), (370, 22805), (372, 22817), (380, 22952), (383, 23009), (392, 23135), (397, 23177), (399, 23228), (407, 23312), (416, 23483), (417, 23495), (424, 23603), (430, 23657), (432, 23669), (441, 23807), (468, 24170), (483, 24305), (490, 24389), (519, 24719), (522, 24752), (524, 24761), (527, 24815), (552, 25271), (554, 25298), (559, 25346), (563, 25403), (576, 25502), (587, 25688), (603, 25874), (621, 26084), (633, 26225), (637, 26255), (651, 26357), (658, 26411), (669, 26543), (671, 26567), (673, 26591), (681, 26651), (683, 26669), (684, 26702), (686, 26714), (687, 26717), (689, 26741),

Gene: Patos\_28 Start: 17141, Stop: 24352, Start Num: 2

Candidate Starts for Patos\_28:

(1, 17120), (Start: 2 @17141 has 26 MA's), (7, 17288), (10, 17402), (12, 17501), (14, 17537), (16, 17549), (23, 17633), (25, 17648), (42, 17780), (46, 17807), (47, 17810), (53, 17876), (59, 17918), (64, 17930), (70, 17954), (72, 17960), (82, 18023), (88, 18077), (89, 18080), (106, 18233), (107, 18236), (124, 18356), (128, 18383), (139, 18431), (142, 18440), (152, 18509), (157, 18545), (160, 18566), (161, 18578), (163, 18590), (164, 18605), (174, 18641), (177, 18674), (180, 18686), (186, 18716), (203, 18821), (211, 18890), (212, 18902), (214, 18911), (226, 19034), (247, 19202), (250, 19226), (252, 19244), (254, 19265), (255, 19274), (258, 19298), (259, 19304), (261, 19325), (271, 19409), (278, 19505), (281, 19532), (285, 19565), (296, 19658), (302, 19688), (305, 19715), (312, 19766), (313, 19769), (317, 19793), (321, 19805), (325, 19820), (327, 19844), (334, 19922), (335, 19934), (348, 20009), (350, 20012), (363, 20159), (365, 20174), (367, 20189), (377, 20288), (379, 20336), (381, 20384), (382, 20390), (387, 20462), (393, 20546), (398, 20588), (400, 20642), (405, 20684), (410, 20768), (416, 20891), (425, 21011), (431, 21062), (440, 21221), (445, 21335), (457, 21503), (460, 21590), (461, 21599), (471, 21731), (474, 21743), (481, 21827), (485, 21860), (505, 22136), (537, 22646), (540, 22691), (546, 22766), (568, 23066), (572, 23084), (591, 23363), (596, 23405), (615, 23651), (627, 23759), (630, 23798), (631, 23801), (633, 23840), (641, 23894), (642, 23903), (643, 23915), (647, 23933), (648, 23957), (655, 23987), (662, 24026), (665, 24050), (679, 24215), (680, 24239), (686, 24305), (688, 24317),

Gene: Phreeze\_26 Start: 16235, Stop: 22558, Start Num: 20

Candidate Starts for Phreeze\_26:

(Start: 20 @16235 has 9 MA's), (26, 16298), (37, 16379), (39, 16397), (58, 16544), (62, 16553), (66, 16565), (78, 16628), (90, 16712), (113, 16898), (116, 16907), (151, 17117), (161, 17192), (178, 17294), (181, 17309), (187, 17339), (190, 17372), (193, 17390), (199, 17420), (204, 17444), (205, 17453), (211, 17516), (214, 17537), (215, 17543), (217, 17567), (231, 17678), (233, 17696), (235, 17717), (237, 17744), (250, 17852), (263, 17945), (264, 17954), (268, 17999), (275, 18086), (283, 18155), (301, 18293), (303, 18308), (312, 18374), (316, 18395), (323, 18416), (335, 18542), (341, 18584), (344, 18593), (346, 18605), (349, 18614), (378, 18938), (381, 18995), (389, 19106), (396, 19181), (402, 19268), (403, 19271), (404, 19286), (417, 19514), (418, 19526), (423, 19610), (433, 19679), (437, 19730), (440, 19790), (443, 19838), (444, 19859), (448, 19919), (458, 20000), (467, 20150), (476, 20228), (485, 20309), (486, 20330), (489, 20375), (498, 20429), (501, 20537), (515,

20633), (516, 20642), (520, 20672), (521, 20675), (541, 20990), (565, 21263), (567, 21272), (574, 21329), (577, 21347), (578, 21380), (579, 21392), (580, 21401), (588, 21524), (600, 21644), (604, 21728), (610, 21794), (616, 21839), (618, 21866), (633, 22028), (634, 22031), (639, 22070), (642, 22091), (666, 22298), (677, 22412), (682, 22457), (686, 22508), (687, 22511), (688, 22520), (689, 22535),

Gene: Predator\_30 Start: 17750, Stop: 24115, Start Num: 20

Candidate Starts for Predator\_30:

(Start: 20 @17750 has 9 MA's), (41, 17921), (50, 18005), (57, 18053), (78, 18143), (85, 18185), (87, 18206), (90, 18227), (94, 18266), (102, 18317), (108, 18374), (109, 18377), (111, 18389), (113, 18410), (144, 18581), (160, 18692), (161, 18704), (162, 18713), (170, 18755), (171, 18758), (187, 18851), (190, 18884), (207, 18989), (210, 19019), (216, 19073), (219, 19103), (220, 19106), (225, 19163), (229, 19187), (233, 19208), (235, 19229), (240, 19271), (247, 19340), (250, 19364), (254, 19403), (263, 19457), (264, 19466), (273, 19547), (275, 19598), (283, 19667), (292, 19733), (297, 19784), (303, 19820), (306, 19841), (316, 19907), (318, 19916), (326, 19946), (330, 19988), (339, 20084), (347, 20123), (353, 20135), (354, 20138), (385, 20591), (389, 20636), (400, 20783), (403, 20801), (408, 20876), (417, 21044), (418, 21056), (423, 21140), (447, 21443), (476, 21779), (482, 21839), (485, 21860), (486, 21881), (489, 21926), (491, 21929), (498, 21980), (500, 22067), (501, 22088), (504, 22109), (515, 22184), (516, 22193), (517, 22202), (518, 22205), (529, 22370), (534, 22463), (535, 22472), (545, 22592), (548, 22613), (550, 22658), (553, 22691), (555, 22721), (567, 22826), (573, 22856), (579, 22946), (580, 22955), (589, 23099), (600, 23198), (601, 23201), (603, 23231), (604, 23282), (609, 23345), (616, 23393), (618, 23420), (631, 23543), (633, 23582), (639, 23624), (666, 23852), (667, 23873), (669, 23897), (677, 23966), (682, 24014), (683, 24020), (686, 24065), (687, 24068), (688, 24077), (689, 24092),

Gene: Puissant\_25 Start: 16698, Stop: 23021, Start Num: 20

Candidate Starts for Puissant\_25:

(Start: 20 @16698 has 9 MA's), (28, 16797), (39, 16860), (50, 16953), (62, 17016), (66, 17028), (71, 17046), (75, 17058), (78, 17091), (85, 17133), (90, 17175), (113, 17361), (126, 17448), (134, 17484), (158, 17634), (167, 17694), (178, 17757), (181, 17772), (182, 17775), (187, 17802), (190, 17835), (198, 17877), (199, 17883), (204, 17907), (205, 17916), (207, 17940), (211, 17979), (214, 18000), (217, 18030), (231, 18141), (233, 18159), (235, 18180), (237, 18207), (250, 18315), (263, 18408), (264, 18417), (268, 18462), (275, 18549), (283, 18618), (287, 18651), (297, 18735), (303, 18771), (307, 18801), (316, 18858), (335, 19005), (339, 19035), (341, 19047), (344, 19056), (346, 19068), (349, 19077), (373, 19314), (378, 19401), (381, 19458), (389, 19569), (396, 19644), (403, 19734), (413, 19914), (417, 19977), (418, 19989), (423, 20073), (433, 20142), (437, 20193), (440, 20253), (443, 20301), (444, 20322), (448, 20382), (458, 20463), (476, 20691), (485, 20772), (486, 20793), (489, 20838), (498, 20892), (501, 21000), (515, 21096), (516, 21105), (541, 21453), (562, 21693), (565, 21726), (567, 21735), (573, 21765), (578, 21843), (580, 21864), (588, 21987), (590, 22014), (593, 22032), (597, 22056), (600, 22107), (603, 22140), (604, 22191), (616, 22302), (618, 22329), (633, 22491), (642, 22554), (644, 22578), (682, 22920), (683, 22926), (686, 22971), (687, 22974), (688, 22983), (689, 22998),

Gene: Ranch\_27 Start: 16067, Stop: 23266, Start Num: 2

Candidate Starts for Ranch\_27:

(1, 16046), (Start: 2 @16067 has 26 MA's), (7, 16214), (10, 16328), (12, 16427), (14, 16463), (16, 16475), (25, 16574), (51, 16793), (53, 16802), (59, 16844), (64, 16856), (70, 16880), (72, 16886), (82, 16949), (88, 17003), (89, 17006), (107, 17162), (121, 17264), (124, 17282), (128, 17309), (139, 17357), (142, 17366), (157, 17471), (160, 17492), (161, 17504), (163, 17516), (164, 17531), (174, 17567), (186, 17642), (187, 17648), (203, 17747), (211, 17816), (212, 17828), (214, 17837), (245, 18116), (247, 18128), (252, 18170), (254, 18191), (255, 18200), (258, 18224), (259, 18230), (261, 18251), (271, 18335), (278, 18431), (281, 18458), (285, 18491), (289, 18512), (312, 18692), (313, 18695), (317, 18719), (321, 18731), (325, 18746), (327, 18770), (334, 18848), (335, 18860), (348,

18935), (350, 18938), (363, 19085), (365, 19100), (367, 19115), (377, 19214), (379, 19262), (381, 19310), (382, 19316), (387, 19388), (393, 19472), (398, 19514), (400, 19568), (405, 19610), (410, 19694), (416, 19817), (425, 19937), (431, 19988), (440, 20147), (445, 20261), (457, 20429), (460, 20516), (471, 20657), (474, 20669), (481, 20753), (485, 20786), (509, 21086), (537, 21572), (538, 21605), (540, 21617), (546, 21695), (566, 21971), (569, 21983), (591, 22277), (596, 22319), (615, 22565), (627, 22673), (630, 22712), (631, 22715), (633, 22754), (635, 22766), (641, 22808), (642, 22817), (643, 22829), (647, 22847), (648, 22871), (655, 22901), (662, 22940), (665, 22964), (679, 23129), (680, 23153), (686, 23219), (688, 23231),

Gene: Rumi\_26 Start: 15136, Stop: 22347, Start Num: 2

Candidate Starts for Rumi\_26:

(1, 15115), (Start: 2 @15136 has 26 MA's), (7, 15283), (10, 15397), (12, 15496), (14, 15532), (16, 15544), (23, 15628), (25, 15643), (42, 15775), (46, 15802), (51, 15862), (53, 15871), (59, 15913), (64, 15925), (70, 15949), (72, 15955), (76, 15976), (82, 16018), (88, 16072), (89, 16075), (107, 16231), (121, 16333), (124, 16351), (128, 16378), (139, 16426), (142, 16435), (157, 16540), (160, 16561), (161, 16573), (163, 16585), (164, 16600), (174, 16636), (180, 16681), (186, 16711), (188, 16738), (203, 16816), (211, 16885), (212, 16897), (214, 16906), (245, 17185), (247, 17197), (252, 17239), (254, 17260), (255, 17269), (258, 17293), (259, 17299), (261, 17320), (271, 17404), (278, 17500), (281, 17527), (285, 17560), (296, 17653), (302, 17683), (312, 17761), (313, 17764), (317, 17788), (321, 17800), (325, 17815), (327, 17839), (334, 17917), (335, 17929), (348, 18004), (350, 18007), (363, 18154), (365, 18169), (367, 18184), (377, 18283), (379, 18331), (381, 18379), (382, 18385), (384, 18430), (387, 18457), (398, 18583), (400, 18637), (405, 18679), (410, 18763), (414, 18850), (416, 18886), (425, 19006), (431, 19057), (440, 19216), (445, 19330), (457, 19507), (460, 19594), (471, 19735), (474, 19747), (481, 19831), (537, 20650), (538, 20683), (540, 20695), (546, 20773), (568, 21061), (584, 21307), (591, 21358), (596, 21400), (615, 21646), (627, 21754), (630, 21793), (631, 21796), (633, 21835), (635, 21847), (641, 21889), (642, 21898), (643, 21910), (647, 21928), (655, 21982), (662, 22021), (665, 22045), (679, 22210), (680, 22234), (686, 22300), (688, 22312),

Gene: Sadboi\_27 Start: 17897, Stop: 25108, Start Num: 2

Candidate Starts for Sadboi\_27:

(1, 17876), (Start: 2 @17897 has 26 MA's), (7, 18044), (10, 18158), (12, 18257), (14, 18293), (16, 18305), (25, 18404), (42, 18536), (46, 18563), (47, 18566), (53, 18632), (59, 18674), (64, 18686), (70, 18710), (72, 18716), (82, 18779), (88, 18833), (89, 18836), (106, 18989), (107, 18992), (121, 19094), (124, 19112), (128, 19139), (139, 19187), (142, 19196), (152, 19265), (157, 19301), (160, 19322), (161, 19334), (163, 19346), (164, 19361), (174, 19397), (177, 19430), (180, 19442), (186, 19472), (203, 19577), (211, 19646), (212, 19658), (214, 19667), (247, 19958), (250, 19982), (252, 20000), (254, 20021), (255, 20030), (258, 20054), (259, 20060), (261, 20081), (271, 20165), (278, 20261), (281, 20288), (285, 20321), (289, 20342), (296, 20414), (302, 20444), (305, 20471), (312, 20522), (313, 20525), (317, 20549), (321, 20561), (325, 20576), (327, 20600), (334, 20678), (335, 20690), (348, 20765), (350, 20768), (363, 20915), (365, 20930), (367, 20945), (377, 21044), (379, 21092), (381, 21140), (382, 21146), (387, 21218), (393, 21302), (398, 21344), (400, 21398), (405, 21440), (410, 21524), (416, 21647), (425, 21767), (431, 21818), (440, 21977), (445, 22091), (457, 22259), (460, 22346), (461, 22355), (471, 22487), (474, 22499), (481, 22583), (505, 22892), (537, 23402), (540, 23447), (546, 23522), (568, 23822), (572, 23840), (591, 24119), (615, 24407), (627, 24515), (630, 24554), (631, 24557), (633, 24596), (641, 24650), (642, 24659), (643, 24671), (647, 24689), (648, 24713), (655, 24743), (662, 24782), (665, 24806), (679, 24971), (680, 24995), (686, 25061), (688, 25073),

Gene: Sampudon\_27 Start: 18073, Stop: 25275, Start Num: 2

Candidate Starts for Sampudon\_27:

(1, 18052), (Start: 2 @18073 has 26 MA's), (7, 18220), (10, 18334), (12, 18433), (14, 18469), (16, 18481), (25, 18580), (42, 18712), (46, 18739), (47, 18742), (51, 18799), (53, 18808), (59, 18850), (64, 18862), (70, 18886), (72, 18892), (76, 18913), (82, 18955), (88, 19009), (89, 19012), (106, 19165),

(107, 19168), (121, 19270), (124, 19288), (128, 19315), (139, 19363), (142, 19372), (152, 19441), (157, 19477), (160, 19498), (161, 19510), (163, 19522), (164, 19537), (174, 19573), (186, 19648), (203, 19753), (211, 19822), (212, 19834), (214, 19843), (247, 20134), (250, 20158), (252, 20176), (254, 20197), (255, 20206), (258, 20230), (259, 20236), (261, 20257), (271, 20341), (278, 20437), (281, 20464), (285, 20497), (296, 20590), (302, 20620), (305, 20647), (312, 20698), (313, 20701), (317, 20725), (321, 20737), (325, 20752), (327, 20776), (334, 20854), (335, 20866), (348, 20941), (350, 20944), (363, 21091), (365, 21106), (367, 21121), (377, 21220), (379, 21268), (381, 21316), (382, 21322), (387, 21394), (393, 21478), (398, 21520), (400, 21574), (405, 21616), (410, 21700), (416, 21823), (425, 21943), (431, 21994), (440, 22153), (445, 22267), (457, 22435), (460, 22522), (461, 22531), (471, 22663), (474, 22675), (481, 22759), (485, 22792), (505, 23068), (537, 23578), (538, 23611), (540, 23623), (546, 23701), (568, 23989), (572, 24007), (591, 24286), (596, 24328), (615, 24574), (627, 24682), (630, 24721), (631, 24724), (633, 24763), (641, 24817), (642, 24826), (643, 24838), (647, 24856), (648, 24880), (655, 24910), (662, 24949), (665, 24973), (679, 25138), (680, 25162), (686, 25228), (688, 25240),

Gene: Sienna\_22 Start: 12549, Stop: 19319, Start Num: 48

Candidate Starts for Sienna\_22:

(Start: 48 @12549 has 9 MA's), (73, 12693), (84, 12765), (86, 12786), (97, 12885), (99, 12897), (101, 12903), (125, 13080), (130, 13113), (133, 13122), (146, 13182), (153, 13239), (160, 13290), (174, 13365), (192, 13476), (195, 13494), (199, 13515), (228, 13758), (232, 13767), (234, 13800), (235, 13803), (237, 13830), (255, 13986), (270, 14097), (271, 14103), (277, 14190), (288, 14274), (293, 14307), (294, 14325), (300, 14370), (305, 14409), (307, 14421), (309, 14436), (312, 14457), (316, 14478), (318, 14487), (320, 14493), (324, 14502), (327, 14532), (343, 14676), (350, 14709), (355, 14724), (367, 14892), (372, 14937), (374, 14946), (376, 14967), (378, 15021), (392, 15231), (397, 15273), (401, 15345), (419, 15654), (424, 15702), (427, 15723), (435, 15831), (450, 16212), (451, 16287), (460, 16473), (475, 16704), (479, 16752), (484, 16803), (486, 16827), (487, 16836), (496, 16929), (507, 17094), (511, 17118), (513, 17133), (536, 17607), (539, 17649), (543, 17685), (557, 17928), (560, 17964), (570, 18057), (582, 18216), (592, 18336), (594, 18351), (598, 18405), (604, 18519), (606, 18552), (607, 18561), (611, 18585), (615, 18609), (628, 18753), (629, 18759), (638, 18846), (642, 18873), (643, 18885), (647, 18903), (652, 18945), (659, 18978), (660, 18987), (662, 18996), (664, 19008), (669, 19104), (674, 19164), (675, 19167), (684, 19263), (685, 19266), (687, 19278), (688, 19287), (690, 19308),

Gene: Suzy\_22 Start: 13782, Stop: 20483, Start Num: 48

Candidate Starts for Suzy\_22:

(40, 13731), (Start: 48 @13782 has 9 MA's), (73, 13926), (84, 13998), (86, 14019), (97, 14118), (99, 14130), (101, 14136), (130, 14346), (133, 14355), (146, 14415), (153, 14472), (160, 14523), (161, 14535), (174, 14598), (192, 14709), (195, 14727), (228, 14991), (234, 15033), (235, 15036), (237, 15063), (241, 15081), (249, 15162), (267, 15315), (269, 15324), (270, 15330), (272, 15345), (277, 15423), (293, 15540), (294, 15558), (300, 15603), (305, 15642), (307, 15654), (309, 15669), (312, 15690), (316, 15711), (318, 15720), (320, 15726), (324, 15735), (327, 15765), (333, 15813), (342, 15906), (343, 15909), (350, 15942), (355, 15957), (367, 16125), (372, 16170), (374, 16179), (376, 16200), (378, 16254), (392, 16464), (397, 16506), (401, 16578), (419, 16887), (424, 16935), (427, 16956), (435, 17064), (456, 17511), (460, 17631), (466, 17769), (479, 17910), (484, 17961), (486, 17985), (487, 17994), (496, 18087), (507, 18252), (511, 18276), (513, 18291), (526, 18513), (536, 18771), (539, 18813), (540, 18822), (543, 18849), (557, 19092), (560, 19128), (574, 19266), (575, 19281), (582, 19377), (585, 19455), (592, 19497), (594, 19512), (598, 19566), (604, 19680), (606, 19713), (607, 19722), (611, 19746), (614, 19767), (615, 19770), (626, 19878), (628, 19914), (629, 19920), (636, 19995), (642, 20034), (649, 20097), (659, 20139), (660, 20148), (662, 20157), (663, 20160), (664, 20169), (668, 20262), (669, 20265), (675, 20328), (684, 20424), (685, 20427), (687, 20439), (688, 20448), (690, 20469),

Gene: Terapin\_22 Start: 12549, Stop: 19319, Start Num: 48

Candidate Starts for Terapin\_22:

(Start: 48 @12549 has 9 MA's), (73, 12693), (84, 12765), (86, 12786), (97, 12885), (99, 12897), (101, 12903), (130, 13113), (133, 13122), (146, 13182), (153, 13239), (160, 13290), (174, 13365), (192, 13476), (195, 13494), (199, 13515), (228, 13758), (232, 13767), (234, 13800), (235, 13803), (237, 13830), (255, 13986), (270, 14097), (271, 14103), (277, 14190), (288, 14274), (293, 14307), (294, 14325), (300, 14370), (305, 14409), (307, 14421), (309, 14436), (312, 14457), (316, 14478), (318, 14487), (320, 14493), (324, 14502), (327, 14532), (343, 14676), (350, 14709), (355, 14724), (367, 14892), (372, 14937), (374, 14946), (376, 14967), (378, 15021), (392, 15231), (397, 15273), (401, 15345), (419, 15654), (424, 15702), (427, 15723), (435, 15831), (450, 16212), (451, 16287), (460, 16473), (475, 16704), (479, 16752), (484, 16803), (486, 16827), (487, 16836), (496, 16929), (507, 17094), (511, 17118), (513, 17133), (536, 17607), (543, 17685), (557, 17928), (560, 17964), (570, 18057), (582, 18216), (592, 18336), (594, 18351), (598, 18405), (604, 18519), (606, 18552), (607, 18561), (611, 18585), (615, 18609), (628, 18753), (629, 18759), (638, 18846), (642, 18873), (643, 18885), (647, 18903), (652, 18945), (659, 18978), (660, 18987), (662, 18996), (664, 19008), (669, 19104), (674, 19164), (675, 19167), (684, 19263), (685, 19266), (687, 19278), (688, 19287), (690, 19308),

Gene: Thumb\_26 Start: 16235, Stop: 22558, Start Num: 20

Candidate Starts for Thumb\_26:

(Start: 20 @16235 has 9 MA's), (26, 16298), (37, 16379), (39, 16397), (58, 16544), (62, 16553), (66, 16565), (71, 16583), (78, 16628), (85, 16670), (88, 16700), (90, 16712), (113, 16898), (116, 16907), (151, 17117), (161, 17192), (178, 17294), (181, 17309), (187, 17339), (190, 17372), (193, 17390), (199, 17420), (204, 17444), (205, 17453), (207, 17477), (211, 17516), (214, 17537), (215, 17543), (217, 17567), (231, 17678), (233, 17696), (235, 17717), (237, 17744), (250, 17852), (263, 17945), (264, 17954), (265, 17966), (268, 17999), (275, 18086), (283, 18155), (301, 18293), (303, 18308), (312, 18374), (316, 18395), (323, 18416), (335, 18542), (341, 18584), (344, 18593), (346, 18605), (349, 18614), (378, 18938), (381, 18995), (389, 19106), (396, 19181), (402, 19268), (403, 19271), (404, 19286), (417, 19514), (418, 19526), (423, 19610), (433, 19679), (437, 19730), (440, 19790), (443, 19838), (444, 19859), (448, 19919), (458, 20000), (467, 20150), (476, 20228), (485, 20309), (486, 20330), (489, 20375), (498, 20429), (501, 20537), (515, 20633), (516, 20642), (520, 20672), (521, 20675), (541, 20990), (565, 21263), (567, 21272), (573, 21302), (577, 21347), (578, 21380), (579, 21392), (580, 21401), (588, 21524), (600, 21644), (603, 21677), (604, 21728), (610, 21794), (613, 21815), (616, 21839), (618, 21866), (633, 22028), (634, 22031), (639, 22070), (642, 22091), (666, 22298), (677, 22412), (682, 22457), (686, 22508), (687, 22511), (688, 22520), (689, 22535),

Gene: Tillicus\_27 Start: 16467, Stop: 23687, Start Num: 2

Candidate Starts for Tillicus\_27:

(1, 16446), (Start: 2 @16467 has 26 MA's), (8, 16662), (11, 16737), (13, 16842), (14, 16863), (15, 16866), (18, 16896), (19, 16905), (23, 16959), (29, 17022), (31, 17028), (45, 17124), (49, 17175), (53, 17202), (64, 17256), (65, 17265), (70, 17280), (84, 17358), (87, 17394), (91, 17418), (112, 17613), (117, 17643), (136, 17748), (152, 17838), (156, 17862), (157, 17874), (160, 17895), (164, 17934), (176, 18000), (177, 18003), (184, 18039), (186, 18045), (187, 18051), (189, 18075), (197, 18120), (203, 18150), (204, 18156), (206, 18174), (212, 18231), (224, 18351), (245, 18519), (252, 18573), (254, 18594), (256, 18612), (258, 18627), (261, 18654), (271, 18738), (281, 18861), (302, 19017), (305, 19044), (308, 19065), (312, 19095), (319, 19128), (325, 19149), (327, 19173), (328, 19176), (329, 19179), (331, 19200), (332, 19212), (334, 19251), (338, 19287), (348, 19338), (359, 19398), (360, 19431), (366, 19509), (367, 19518), (381, 19707), (382, 19713), (387, 19785), (388, 19815), (393, 19869), (398, 19911), (405, 20007), (410, 20091), (416, 20214), (425, 20334), (431, 20385), (457, 20838), (458, 20868), (460, 20925), (464, 21000), (471, 21066), (474, 21078), (481, 21162), (485, 21195), (486, 21216), (492, 21285), (537, 21981), (540, 22026), (546, 22101), (568, 22401), (572, 22419), (595, 22725), (605, 22914), (615, 22986), (624, 23073), (627, 23094), (630, 23133), (633, 23175), (640, 23220), (641, 23229), (642, 23238), (643, 23250), (647, 23268), (654, 23319), (661, 23355), (662, 23361), (665, 23385), (670, 23487), (676, 23535), (679, 23550), (680, 23574),



(685, 23631), (686, 23640), (688, 23652),

Gene: Wojtek\_26 Start: 16774, Stop: 23985, Start Num: 2

Candidate Starts for Wojtek\_26:

(1, 16753), (Start: 2 @16774 has 26 MA's), (7, 16921), (10, 17035), (12, 17134), (14, 17170), (16, 17182), (25, 17281), (42, 17413), (51, 17500), (53, 17509), (59, 17551), (64, 17563), (70, 17587), (72, 17593), (82, 17656), (88, 17710), (89, 17713), (106, 17866), (107, 17869), (121, 17971), (124, 17989), (128, 18016), (139, 18064), (142, 18073), (152, 18142), (157, 18178), (160, 18199), (161, 18211), (163, 18223), (164, 18238), (186, 18349), (203, 18454), (211, 18523), (212, 18535), (214, 18544), (247, 18835), (252, 18877), (254, 18898), (255, 18907), (258, 18931), (259, 18937), (261, 18958), (267, 19021), (271, 19042), (278, 19138), (281, 19165), (285, 19198), (302, 19321), (305, 19348), (312, 19399), (313, 19402), (317, 19426), (321, 19438), (325, 19453), (327, 19477), (334, 19555), (335, 19567), (348, 19642), (350, 19645), (363, 19792), (365, 19807), (367, 19822), (377, 19921), (379, 19969), (381, 20017), (382, 20023), (384, 20068), (387, 20095), (393, 20179), (398, 20221), (400, 20275), (405, 20317), (410, 20401), (416, 20524), (425, 20644), (431, 20695), (440, 20854), (457, 21148), (458, 21178), (460, 21235), (464, 21310), (471, 21376), (474, 21388), (481, 21472), (485, 21505), (486, 21526), (537, 22291), (538, 22324), (540, 22336), (546, 22414), (566, 22690), (569, 22702), (591, 22996), (596, 23038), (615, 23284), (624, 23371), (627, 23392), (630, 23431), (633, 23473), (640, 23518), (641, 23527), (642, 23536), (643, 23548), (653, 23611), (655, 23620), (662, 23659), (665, 23683), (679, 23848), (680, 23872), (685, 23929), (686, 23938), (688, 23950),

Gene: Xenia2\_23 Start: 16812, Stop: 24071, Start Num: 2

Candidate Starts for Xenia2\_23:

(1, 16791), (Start: 2 @16812 has 26 MA's), (6, 16956), (7, 16959), (9, 17031), (14, 17208), (15, 17211), (16, 17220), (17, 17235), (18, 17241), (23, 17304), (24, 17313), (26, 17325), (29, 17367), (49, 17520), (51, 17538), (55, 17559), (59, 17589), (68, 17619), (70, 17625), (74, 17640), (79, 17682), (82, 17694), (84, 17703), (86, 17727), (88, 17748), (91, 17763), (92, 17781), (96, 17817), (100, 17844), (106, 17904), (118, 18006), (119, 18009), (121, 18030), (124, 18048), (127, 18063), (130, 18084), (132, 18093), (138, 18129), (142, 18141), (149, 18195), (156, 18234), (157, 18246), (160, 18267), (165, 18309), (168, 18321), (173, 18339), (175, 18363), (186, 18417), (200, 18507), (203, 18522), (212, 18603), (221, 18678), (227, 18741), (245, 18891), (252, 18945), (254, 18966), (255, 18975), (260, 19014), (263, 19032), (271, 19107), (285, 19263), (286, 19266), (312, 19473), (327, 19551), (334, 19629), (340, 19683), (352, 19725), (359, 19776), (366, 19887), (367, 19896), (371, 19938), (375, 19971), (377, 19995), (381, 20085), (382, 20091), (387, 20163), (388, 20193), (398, 20289), (405, 20385), (409, 20457), (410, 20469), (416, 20592), (425, 20712), (453, 21183), (461, 21330), (470, 21456), (472, 21465), (473, 21471), (474, 21474), (476, 21504), (477, 21528), (479, 21537), (481, 21558), (486, 21612), (488, 21654), (506, 21873), (509, 21891), (528, 22167), (532, 22266), (537, 22377), (538, 22410), (540, 22422), (546, 22500), (571, 22800), (572, 22803), (599, 23187), (615, 23370), (641, 23613), (653, 23697), (659, 23727), (679, 23934), (680, 23958), (685, 24015),

Gene: Yikes\_28 Start: 18158, Stop: 25360, Start Num: 2

Candidate Starts for Yikes\_28:

(1, 18137), (Start: 2 @18158 has 26 MA's), (7, 18305), (10, 18419), (12, 18518), (14, 18554), (16, 18566), (25, 18665), (42, 18797), (46, 18824), (47, 18827), (53, 18893), (59, 18935), (64, 18947), (70, 18971), (72, 18977), (82, 19040), (88, 19094), (89, 19097), (106, 19250), (107, 19253), (121, 19355), (124, 19373), (128, 19400), (139, 19448), (142, 19457), (152, 19526), (157, 19562), (160, 19583), (161, 19595), (163, 19607), (164, 19622), (174, 19658), (186, 19733), (203, 19838), (211, 19907), (212, 19919), (214, 19928), (247, 20219), (252, 20261), (254, 20282), (255, 20291), (258, 20315), (259, 20321), (261, 20342), (271, 20426), (278, 20522), (281, 20549), (285, 20582), (296, 20675), (302, 20705), (305, 20732), (312, 20783), (313, 20786), (317, 20810), (321, 20822), (325, 20837), (327, 20861), (334, 20939), (335, 20951), (350, 21029), (363, 21176), (365, 21191), (367, 21206), (377, 21305), (379, 21353), (381, 21401), (382, 21407), (387, 21479), (393, 21563), (398, 21605), (400, 21659), (405, 21701), (410, 21785), (416, 21908), (425, 22028), (431, 22079), (440, 22238),

(445, 22352), (457, 22520), (460, 22607), (461, 22616), (469, 22739), (471, 22748), (474, 22760), (481, 22844), (505, 23153), (537, 23663), (538, 23696), (540, 23708), (546, 23786), (568, 24074), (572, 24092), (591, 24371), (596, 24413), (615, 24659), (627, 24767), (630, 24806), (631, 24809), (633, 24848), (641, 24902), (642, 24911), (643, 24923), (647, 24941), (648, 24965), (655, 24995), (662, 25034), (665, 25058), (679, 25223), (680, 25247), (686, 25313), (688, 25325),

Gene: Zany\_26 Start: 17679, Stop: 24881, Start Num: 4

Candidate Starts for Zany\_26:

(Start: 4 @17679 has 1 MA's), (7, 17826), (10, 17940), (12, 18039), (14, 18075), (16, 18087), (25, 18186), (42, 18318), (53, 18414), (59, 18456), (64, 18468), (70, 18492), (72, 18498), (82, 18561), (88, 18615), (89, 18618), (106, 18771), (107, 18774), (121, 18876), (124, 18894), (128, 18921), (139, 18969), (142, 18978), (152, 19047), (157, 19083), (160, 19104), (161, 19116), (163, 19128), (164, 19143), (174, 19179), (186, 19254), (203, 19359), (211, 19428), (212, 19440), (214, 19449), (247, 19740), (252, 19782), (254, 19803), (255, 19812), (258, 19836), (259, 19842), (261, 19863), (271, 19947), (278, 20043), (281, 20070), (285, 20103), (296, 20196), (302, 20226), (305, 20253), (312, 20304), (313, 20307), (317, 20331), (321, 20343), (325, 20358), (327, 20382), (334, 20460), (335, 20472), (348, 20547), (350, 20550), (363, 20697), (365, 20712), (367, 20727), (377, 20826), (379, 20874), (381, 20922), (382, 20928), (387, 21000), (393, 21084), (398, 21126), (400, 21180), (405, 21222), (410, 21306), (416, 21429), (425, 21549), (431, 21600), (440, 21759), (445, 21873), (457, 22041), (459, 22101), (460, 22128), (461, 22137), (471, 22269), (474, 22281), (481, 22365), (505, 22674), (507, 22686), (537, 23184), (538, 23217), (540, 23229), (546, 23307), (568, 23595), (572, 23613), (591, 23892), (615, 24180), (627, 24288), (630, 24327), (631, 24330), (633, 24369), (641, 24423), (642, 24432), (643, 24444), (647, 24462), (648, 24486), (653, 24507), (655, 24516), (662, 24555), (665, 24579), (679, 24744), (680, 24768), (686, 24834), (688, 24846),