



51: Fricke_60	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
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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 200127 Report

This analysis was run 01/18/25 on database version 583.

Pham number 200127 has 110 members, 11 are drafts.

Phages represented in each track:

- Track 1 : Daubenski\_81
- Track 2 : Scheme\_81
- Track 3 : Cursive\_78, HangryHippo\_80, Watermoore\_80, BlueOtter\_80, PacManQ\_79, Leo04\_81, Cross\_80, Lululemon\_79
- Track 4 : Marsus\_78
- Track 5 : Larnav\_80, Tribute\_78
- Track 6 : Paradiddles\_75
- Track 7 : EGole\_81
- Track 8 : Mildred21\_78
- Track 9 : Targaryen\_80
- Track 10 : Anedea\_78
- Track 11 : Evy\_80
- Track 12 : Braelyn\_79
- Track 13 : Bartholomune\_78, Squillium\_79, Liandry\_78, Persimmon\_77, PinkiePie\_78
- Track 14 : MulchMansion\_77, LilMartin\_77, Angela\_76
- Track 15 : Deutsch\_80
- Track 16 : Riptide\_77
- Track 17 : NootNoot\_75
- Track 18 : Samisti12\_80
- Track 19 : Bmoc\_78
- Track 20 : Pepperwood\_80
- Track 21 : Peebs\_79
- Track 22 : Navo\_77
- Track 23 : WhereRU\_77
- Track 24 : Shuckle\_78
- Track 25 : Sushi23\_79
- Track 26 : Warpy\_83
- Track 27 : Jay2Jay\_84
- Track 28 : Starbow\_80, Battuta\_80
- Track 29 : Amabiko\_82, MindFlayer\_79
- Track 30 : CeilingFan\_84, Karimac\_81, Gibbi\_86, JimJam\_82
- Track 31 : Birchlyn\_79
- Track 32 : Spelly\_82
- Track 33 : BoomerJR\_82, Genie2\_82, Stanimal\_82
- Track 34 : Quarant19\_81, PumpkinSpice\_81, Rikishi\_84, Jollison\_81
- Track 35 : LukeCage\_81

- Track 36 : Sollertia\_82
- Track 37 : Bordeaux\_80
- Track 38 : KentuckyRacer\_82
- Track 39 : TomSawyer\_80
- Track 40 : Enygma\_82
- Track 41 : IchabodCrane\_79, Spilled\_83
- Track 42 : StarPlatinum\_82
- Track 43 : Elmer\_84
- Track 44 : SaltySpittoon\_81
- Track 45 : Wofford\_81
- Track 46 : Yaboi\_82
- Track 47 : Tomas\_84
- Track 48 : Mugiwara\_83
- Track 49 : Wipeout\_79
- Track 50 : Jada\_60, Forrest\_62, MeganTheeKilla\_59, Gilson\_61
- Track 51 : Phredrick\_60, Kenrey\_62
- Track 52 : Moab\_61
- Track 53 : Annadreamy\_58, Limpid\_57
- Track 54 : Beuffert\_58
- Track 55 : Belfort\_62, SparkleGoddess\_61
- Track 56 : Emma1919\_62
- Track 57 : SeresaTree\_61
- Track 58 : Sham\_57
- Track 59 : Patelgo\_60
- Track 60 : Westy\_58
- Track 61 : Blueeyedbeauty\_60
- Track 62 : Comrade\_61
- Track 63 : Francob\_59
- Track 64 : Karp\_59
- Track 65 : TunaTartare\_59
- Track 66 : Stigma\_60
- Track 67 : Faust\_61
- Track 68 : BillNye\_56
- Track 69 : Circinus\_58
- Track 70 : Wakanda\_57
- Track 71 : Muntaha\_58
- Track 72 : Weasels2\_102
- Track 73 : Grayson\_103
- Track 74 : Peregrin\_100
- Track 75 : Trina\_102
- Track 76 : NiceHouse\_90
- Track 77 : Nova53\_75
- Track 78 : Francesca\_77
- Track 79 : Dorin\_77

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

The start number called the most often in the published annotations is 10, it was called in 62 of the 99 non-draft genes in the pham.

Genes that call this "Most Annotated" start:

- Anedea\_78, Angela\_76, Annadreamy\_58, Bartholomune\_78, Belfort\_62, Beuffert\_58, BillNye\_56, BlueOtter\_80, Bmoc\_78, Braelyn\_79, Circinus\_58, Comrade\_61, Cross\_80, Cursive\_78, Daubenski\_81, EGole\_81, Emma1919\_62, Evy\_80, Faust\_61, Forrest\_62, Francob\_59, Gilson\_61, HangryHippo\_80, Jada\_60, Jay2Jay\_84, Karp\_59, Kenrey\_62, Larnav\_80, Leo04\_81, Liandry\_78, LilMartin\_77, Limpid\_57, Lululemon\_79, Marsus\_78, MeganTheeKilla\_59, Mildred21\_78, Moab\_61, MulchMansion\_77, Muntaha\_58, Navo\_77, NootNoot\_75, PacManQ\_79, Paradiddles\_75, Patelgo\_60, Peebs\_79, Pepperwood\_80, Persimmon\_77, Phredrick\_60, PinkiePie\_78, Riptide\_77, Samisti12\_80, Scheme\_81, SeresaTree\_61, Sham\_57, Shuckle\_78, SparkleGoddess\_61, Squillium\_79, Stigma\_60, Sushi23\_79, Targaryen\_80, Deutsch\_80, Tribute\_78, TunaTartare\_59, Wakanda\_57, Warpy\_83, Watermoore\_80, Westy\_58, WhereRU\_77,

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

- Blueeyedbeauty\_60,

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

- Amabiko\_82, Battuta\_80, Birchlyn\_79, BoomerJR\_82, Bordeaux\_80, CeilingFan\_84, Dorin\_77, Elmer\_84, Enygma\_82, Francesca\_77, Genie2\_82, Gibbi\_86, Grayson\_103, IchabodCrane\_79, JimJam\_82, Jollison\_81, Karimac\_81, KentuckyRacer\_82, LukeCage\_81, MindFlayer\_79, Mugiwara\_83, NiceHouse\_90, Nova53\_75, Peregrin\_100, PumpkinSpice\_81, Quarant19\_81, Rikishi\_84, SaltySpittoon\_81, Sollertia\_82, Spelly\_82, Spilled\_83, Stanimal\_82, StarPlatinum\_82, Starbow\_80, TomSawyer\_80, Tomas\_84, Trina\_102, Weasels2\_102, Wipeout\_79, Wofford\_81, Yaboi\_82,

### Summary by start number:

Start 6:

- Found in 1 of 110 ( 0.9% ) of genes in pham
- No Manual Annotations of this start.
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Nova53\_75 (CG),

Start 8:

- Found in 2 of 110 ( 1.8% ) of genes in pham
- Manual Annotations of this start: 2 of 99
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Dorin\_77 (CG), Francesca\_77 (CG),

Start 9:

- Found in 33 of 110 ( 30.0% ) of genes in pham
- Manual Annotations of this start: 29 of 99
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Amabiko\_82 (BE2), Battuta\_80 (BE2), Birchlyn\_79 (BE2), BoomerJR\_82 (BE2), Bordeaux\_80 (BE2), CeilingFan\_84 (BE2), Elmer\_84 (BE2), Enygma\_82 (BE2), Genie2\_82 (BE2), Gibbi\_86 (BE2), IchabodCrane\_79 (BE2), JimJam\_82 (BE2), Jollison\_81 (BE2), Karimac\_81 (BE2), KentuckyRacer\_82 (BE2), LukeCage\_81 (BE2), MindFlayer\_79 (BE2), Mugiwara\_83 (BE2), PumpkinSpice\_81 (BE2), Quarant19\_81 (BE2), Rikishi\_84 (BE2), SaltySpittoon\_81 (BE2), Sollertia\_82 (BE2), Spelly\_82 (BE2), Spilled\_83 (BE2), Stanimal\_82 (BE2), StarPlatinum\_82 (BE2), Starbow\_80 (BE2), TomSawyer\_80

(BE2), Tomas\_84 (BE2), Wipeout\_79 (BE2), Wofford\_81 (BE2), Yaboi\_82 (BE2),

Start 10:

- Found in 69 of 110 ( 62.7% ) of genes in pham
- Manual Annotations of this start: 62 of 99
- Called 98.6% of time when present
- Phage (with cluster) where this start called: Anedea\_78 (BE1), Angela\_76 (BE1), Annadreamy\_58 (BK1), Bartholomune\_78 (BE1), Belfort\_62 (BK1), Beuffert\_58 (BK1), BillNye\_56 (BK2), BlueOtter\_80 (BE1), Bmoc\_78 (BE1), Braelyn\_79 (BE1), Circinus\_58 (BK2), Comrade\_61 (BK1), Cross\_80 (BE1), Cursive\_78 (BE1), Daubenski\_81 (BE1), EGole\_81 (BE1), Emma1919\_62 (BK1), Evy\_80 (BE1), Faust\_61 (BK1), Forrest\_62 (BK1), Francob\_59 (BK1), Gilson\_61 (BK1), HangryHippo\_80 (BE1), Jada\_60 (BK1), Jay2Jay\_84 (BE1), Karp\_59 (BK1), Kenrey\_62 (BK1), Larnav\_80 (BE1), Leo04\_81 (BE1), Liandry\_78 (BE1), LilMartin\_77 (BE1), Limpid\_57 (BK1), Lululemon\_79 (BE1), Marsus\_78 (BE1), MeganTheeKilla\_59 (BK1), Mildred21\_78 (BE1), Moab\_61 (BK1), MulchMansion\_77 (BE1), Muntaha\_58 (BK2), Navo\_77 (BE1), NootNoot\_75 (BE1), PacManQ\_79 (BE1), Paradiddles\_75 (BE1), Patelgo\_60 (BK1), Peebs\_79 (BE1), Pepperwood\_80 (BE1), Persimmon\_77 (BE1), Phredrick\_60 (BK1), PinkiePie\_78 (BE1), Riptide\_77 (BE1), Samisti12\_80 (BE1), Scheme\_81 (BE1), SeresaTree\_61 (BK1), Sham\_57 (BK1), Shuckle\_78 (BE1), SparkleGoddess\_61 (BK1), Squillium\_79 (BE1), Stigma\_60 (BK1), Sushi23\_79 (BE1), Targaryen\_80 (BE1), Teutsch\_80 (BE1), Tribute\_78 (BE1), TunaTartare\_59 (BK1), Wakanda\_57 (BK2), Warpy\_83 (BE1), Watermoore\_80 (BE1), Westy\_58 (BK1), WhereRU\_77 (BE1),

Start 11:

- Found in 3 of 110 ( 2.7% ) of genes in pham
- Manual Annotations of this start: 1 of 99
- Called 33.3% of time when present
- Phage (with cluster) where this start called: NiceHouse\_90 (CE),

Start 19:

- Found in 102 of 110 ( 92.7% ) of genes in pham
- Manual Annotations of this start: 1 of 99
- Called 1.0% of time when present
- Phage (with cluster) where this start called: Blueeyedbeauty\_60 (BK1),

Start 73:

- Found in 3 of 110 ( 2.7% ) of genes in pham
- Manual Annotations of this start: 3 of 99
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Grayson\_103 (CB), Peregrin\_100 (CB), Weasels2\_102 (CB),

Start 74:

- Found in 1 of 110 ( 0.9% ) of genes in pham
- Manual Annotations of this start: 1 of 99
- Called 100.0% of time when present
- Phage (with cluster) where this start called: Trina\_102 (CE),

### Summary by clusters:

There are 7 clusters represented in this pham: CB, CG, CE, BK1, BK2, BE2, BE1,

Info for manual annotations of cluster BE1:

- Start number 10 was manually annotated 37 times for cluster BE1.

Info for manual annotations of cluster BE2:

- Start number 9 was manually annotated 29 times for cluster BE2.

Info for manual annotations of cluster BK1:

- Start number 10 was manually annotated 21 times for cluster BK1.
- Start number 19 was manually annotated 1 time for cluster BK1.

Info for manual annotations of cluster BK2:

- Start number 10 was manually annotated 4 times for cluster BK2.

Info for manual annotations of cluster CB:

- Start number 73 was manually annotated 3 times for cluster CB.

Info for manual annotations of cluster CE:

- Start number 11 was manually annotated 1 time for cluster CE.
- Start number 74 was manually annotated 1 time for cluster CE.

Info for manual annotations of cluster CG:

- Start number 8 was manually annotated 2 times for cluster CG.

### **Gene Information:**

Gene: Amabiko\_82 Start: 58443, Stop: 61763, Start Num: 9

Candidate Starts for Amabiko\_82:

(Start: 9 @58443 has 29 MA's), (15, 58494), (16, 58515), (Start: 19 @58539 has 1 MA's), (22, 58620), (28, 58818), (41, 58998), (46, 59046), (47, 59049), (51, 59103), (55, 59154), (56, 59172), (58, 59181), (61, 59217), (70, 59325), (72, 59334), (93, 59544), (99, 59613), (108, 59778), (116, 59856), (134, 60018), (142, 60105), (148, 60141), (162, 60225), (168, 60288), (169, 60297), (182, 60501), (185, 60555), (187, 60564), (190, 60582), (191, 60588), (202, 60771), (205, 60780), (208, 60804), (213, 60831), (229, 60939), (238, 61038), (246, 61128), (254, 61206), (260, 61248), (263, 61266), (269, 61308), (276, 61347), (277, 61353), (281, 61380), (286, 61419), (293, 61467), (294, 61476), (303, 61548), (306, 61569), (308, 61596), (309, 61599), (312, 61614), (316, 61647), (325, 61716),

Gene: Anedea\_78 Start: 57982, Stop: 61266, Start Num: 10

Candidate Starts for Anedea\_78:

(Start: 10 @57982 has 62 MA's), (14, 58027), (16, 58057), (Start: 19 @58081 has 1 MA's), (28, 58360), (32, 58399), (36, 58462), (41, 58540), (42, 58552), (51, 58645), (56, 58708), (57, 58714), (61, 58753), (72, 58870), (83, 58969), (93, 59080), (99, 59149), (103, 59188), (117, 59401), (135, 59536), (136, 59551), (146, 59641), (147, 59647), (148, 59653), (162, 59737), (168, 59800), (169, 59809), (170, 59836), (174, 59881), (178, 59944), (182, 60016), (185, 60070), (187, 60079), (189, 60088), (190, 60097), (191, 60103), (213, 60346), (222, 60397), (224, 60415), (226, 60427), (227, 60430), (269, 60811), (281, 60883), (286, 60922), (293, 60970), (303, 61051), (304, 61060), (309, 61102), (316, 61150), (319, 61165), (323, 61204),

Gene: Angela\_76 Start: 57448, Stop: 60732, Start Num: 10

Candidate Starts for Angela\_76:



(2, 57364), (3, 57391), (Start: 10 @57448 has 62 MA's), (14, 57493), (16, 57523), (18, 57541), (Start: 19 @57547 has 1 MA's), (28, 57826), (36, 57928), (41, 58006), (42, 58018), (51, 58111), (56, 58174), (57, 58180), (61, 58219), (72, 58336), (76, 58375), (83, 58435), (93, 58546), (95, 58576), (103, 58654), (114, 58843), (117, 58867), (120, 58888), (135, 59002), (136, 59017), (146, 59107), (147, 59113), (148, 59119), (151, 59143), (152, 59146), (162, 59203), (165, 59236), (168, 59266), (169, 59275), (174, 59347), (175, 59356), (178, 59410), (182, 59482), (185, 59536), (187, 59545), (189, 59554), (190, 59563), (191, 59569), (194, 59650), (213, 59812), (224, 59881), (226, 59893), (238, 60007), (267, 60268), (269, 60277), (286, 60388), (293, 60436), (303, 60517), (309, 60568), (316, 60616), (319, 60631),

Gene: Annadreamy\_58 Start: 47706, Stop: 50996, Start Num: 10

Candidate Starts for Annadreamy\_58:

(Start: 10 @47706 has 62 MA's), (16, 47778), (18, 47796), (Start: 19 @47802 has 1 MA's), (28, 48081), (34, 48141), (51, 48366), (56, 48429), (59, 48456), (60, 48471), (61, 48474), (93, 48801), (131, 49230), (135, 49257), (140, 49311), (147, 49368), (148, 49374), (169, 49530), (170, 49557), (174, 49602), (178, 49665), (181, 49734), (182, 49737), (185, 49791), (187, 49800), (189, 49809), (190, 49818), (191, 49824), (197, 49938), (205, 50016), (208, 50040), (215, 50076), (224, 50136), (225, 50142), (236, 50259), (242, 50328), (257, 50457), (259, 50469), (268, 50526), (269, 50532), (286, 50643), (288, 50652), (289, 50673), (295, 50703), (298, 50727), (299, 50736), (309, 50823), (317, 50874), (319, 50886), (328, 50973),

Gene: Bartholomune\_78 Start: 57817, Stop: 61101, Start Num: 10

Candidate Starts for Bartholomune\_78:

(Start: 10 @57817 has 62 MA's), (14, 57862), (16, 57892), (18, 57910), (Start: 19 @57916 has 1 MA's), (21, 57982), (28, 58195), (29, 58201), (36, 58297), (41, 58375), (51, 58480), (56, 58543), (57, 58549), (61, 58588), (72, 58705), (83, 58804), (93, 58915), (95, 58945), (99, 58984), (116, 59227), (135, 59371), (136, 59386), (147, 59482), (148, 59488), (151, 59512), (162, 59572), (168, 59635), (169, 59644), (174, 59716), (178, 59779), (182, 59851), (185, 59905), (187, 59914), (189, 59923), (190, 59932), (191, 59938), (194, 60019), (201, 60118), (213, 60181), (224, 60250), (226, 60262), (243, 60448), (246, 60466), (256, 60562), (262, 60595), (269, 60646), (276, 60685), (277, 60691), (286, 60757), (289, 60787), (293, 60805), (298, 60841), (303, 60886), (304, 60895), (307, 60916), (309, 60937), (316, 60985), (319, 61000),

Gene: Battuta\_80 Start: 58417, Stop: 61737, Start Num: 9

Candidate Starts for Battuta\_80:

(Start: 9 @58417 has 29 MA's), (15, 58468), (16, 58489), (Start: 19 @58513 has 1 MA's), (22, 58594), (28, 58792), (41, 58972), (46, 59020), (51, 59077), (52, 59080), (55, 59128), (56, 59146), (58, 59155), (61, 59191), (70, 59299), (72, 59308), (93, 59518), (99, 59587), (108, 59752), (116, 59830), (134, 59992), (148, 60115), (162, 60199), (168, 60262), (169, 60271), (182, 60475), (185, 60529), (187, 60538), (190, 60556), (191, 60562), (202, 60745), (205, 60754), (208, 60778), (213, 60805), (229, 60913), (246, 61102), (254, 61180), (260, 61222), (263, 61240), (269, 61282), (276, 61321), (277, 61327), (281, 61354), (286, 61393), (293, 61441), (294, 61450), (303, 61522), (306, 61543), (308, 61570), (309, 61573), (312, 61588), (316, 61621), (325, 61690),

Gene: Belfort\_62 Start: 50235, Stop: 53525, Start Num: 10

Candidate Starts for Belfort\_62:

(5, 50217), (Start: 10 @50235 has 62 MA's), (12, 50250), (13, 50256), (15, 50286), (16, 50307), (18, 50325), (Start: 19 @50331 has 1 MA's), (24, 50499), (26, 50541), (28, 50610), (34, 50670), (40, 50784), (41, 50790), (51, 50895), (56, 50958), (57, 50964), (61, 51003), (80, 51192), (86, 51249), (89, 51276), (92, 51321), (114, 51627), (119, 51663), (130, 51747), (135, 51786), (146, 51891), (148, 51903), (153, 51936), (158, 51966), (159, 51969), (161, 51981), (162, 51987), (169, 52059), (173, 52125), (174, 52131), (178, 52194), (182, 52266), (185, 52320), (187, 52329), (190, 52347), (191, 52353), (197, 52467), (201, 52533), (205, 52545), (208, 52569), (215, 52605), (216, 52608), (224,



52665), (225, 52671), (228, 52683), (232, 52719), (236, 52788), (257, 52986), (263, 53019), (268, 53055), (269, 53061), (273, 53073), (286, 53172), (288, 53181), (289, 53202), (295, 53232), (301, 53289), (309, 53352), (317, 53403), (319, 53415),

Gene: Beuffert\_58 Start: 48843, Stop: 52133, Start Num: 10

Candidate Starts for Beuffert\_58:

(Start: 10 @48843 has 62 MA's), (16, 48915), (Start: 19 @48939 has 1 MA's), (28, 49218), (34, 49278), (46, 49446), (51, 49503), (56, 49566), (60, 49608), (61, 49611), (93, 49938), (98, 50004), (99, 50007), (131, 50367), (135, 50394), (140, 50448), (147, 50505), (148, 50511), (169, 50667), (170, 50694), (174, 50739), (178, 50802), (182, 50874), (185, 50928), (187, 50937), (189, 50946), (190, 50955), (191, 50961), (197, 51075), (205, 51153), (215, 51213), (224, 51273), (225, 51279), (228, 51291), (236, 51396), (242, 51465), (257, 51594), (266, 51657), (267, 51660), (268, 51663), (269, 51669), (286, 51780), (288, 51789), (289, 51810), (295, 51840), (298, 51864), (299, 51873), (309, 51960), (311, 51972), (317, 52011), (319, 52023), (328, 52110),

Gene: BillNye\_56 Start: 51723, Stop: 55010, Start Num: 10

Candidate Starts for BillNye\_56:

(Start: 10 @51723 has 62 MA's), (13, 51744), (16, 51795), (Start: 19 @51819 has 1 MA's), (23, 51915), (28, 52098), (34, 52158), (38, 52248), (41, 52278), (45, 52320), (46, 52326), (51, 52383), (56, 52446), (61, 52491), (65, 52539), (93, 52818), (99, 52887), (106, 53019), (108, 53052), (117, 53139), (130, 53235), (135, 53274), (136, 53289), (147, 53385), (148, 53391), (153, 53424), (161, 53469), (162, 53475), (164, 53505), (169, 53547), (171, 53592), (174, 53619), (178, 53682), (182, 53754), (185, 53808), (187, 53817), (190, 53835), (191, 53841), (198, 53967), (201, 54021), (205, 54033), (213, 54084), (226, 54165), (228, 54171), (240, 54327), (269, 54549), (270, 54552), (286, 54660), (288, 54669), (293, 54708), (304, 54798), (309, 54840), (312, 54855), (319, 54903), (327, 54981),

Gene: Birchlyn\_79 Start: 56300, Stop: 59620, Start Num: 9

Candidate Starts for Birchlyn\_79:

(Start: 9 @56300 has 29 MA's), (15, 56351), (16, 56372), (Start: 19 @56396 has 1 MA's), (22, 56477), (28, 56675), (41, 56855), (46, 56903), (51, 56960), (55, 57011), (56, 57029), (58, 57038), (61, 57074), (70, 57182), (72, 57191), (93, 57401), (99, 57470), (108, 57635), (116, 57713), (134, 57875), (148, 57998), (162, 58082), (168, 58145), (169, 58154), (182, 58358), (185, 58412), (187, 58421), (190, 58439), (191, 58445), (202, 58628), (205, 58637), (208, 58661), (213, 58688), (229, 58796), (246, 58985), (254, 59063), (260, 59105), (263, 59123), (269, 59165), (276, 59204), (277, 59210), (281, 59237), (286, 59276), (293, 59324), (294, 59333), (303, 59405), (306, 59426), (308, 59453), (309, 59456), (312, 59471), (316, 59504), (325, 59573),

Gene: BlueOtter\_80 Start: 59162, Stop: 62446, Start Num: 10

Candidate Starts for BlueOtter\_80:

(Start: 10 @59162 has 62 MA's), (14, 59207), (16, 59237), (18, 59255), (Start: 19 @59261 has 1 MA's), (28, 59540), (36, 59642), (41, 59720), (51, 59825), (56, 59888), (57, 59894), (61, 59933), (72, 60050), (81, 60134), (93, 60260), (95, 60290), (99, 60329), (100, 60338), (112, 60536), (135, 60716), (146, 60821), (147, 60827), (148, 60833), (162, 60917), (164, 60947), (169, 60989), (170, 61016), (172, 61049), (174, 61061), (178, 61124), (182, 61196), (185, 61250), (187, 61259), (189, 61268), (190, 61277), (191, 61283), (213, 61526), (224, 61595), (226, 61607), (235, 61712), (256, 61907), (262, 61940), (269, 61991), (276, 62030), (277, 62036), (286, 62102), (293, 62150), (298, 62186), (303, 62231), (304, 62240), (309, 62282), (315, 62327), (316, 62330), (319, 62345),

Gene: Blueeyedbeauty\_60 Start: 48314, Stop: 51508, Start Num: 19

Candidate Starts for Blueeyedbeauty\_60:

(Start: 10 @48218 has 62 MA's), (16, 48290), (Start: 19 @48314 has 1 MA's), (28, 48593), (30, 48623), (34, 48653), (47, 48824), (51, 48878), (56, 48941), (60, 48983), (61, 48986), (93, 49313), (98, 49379), (108, 49547), (129, 49727), (131, 49742), (135, 49769), (140, 49823), (147, 49880), (148, 49886),

(158, 49949), (165, 50003), (169, 50042), (174, 50114), (178, 50177), (180, 50237), (181, 50246), (182, 50249), (185, 50303), (187, 50312), (189, 50321), (190, 50330), (191, 50336), (197, 50450), (205, 50528), (208, 50552), (215, 50588), (224, 50648), (225, 50654), (228, 50666), (236, 50771), (257, 50969), (267, 51035), (268, 51038), (269, 51044), (286, 51155), (287, 51161), (288, 51164), (289, 51185), (295, 51215), (299, 51248), (301, 51272), (309, 51335), (311, 51347), (317, 51386), (319, 51398), (328, 51485),

Gene: Bmoc\_78 Start: 57819, Stop: 61103, Start Num: 10

Candidate Starts for Bmoc\_78:

(Start: 10 @57819 has 62 MA's), (14, 57864), (16, 57894), (Start: 19 @57918 has 1 MA's), (28, 58197), (36, 58299), (41, 58377), (51, 58482), (56, 58545), (57, 58551), (61, 58590), (72, 58707), (83, 58806), (93, 58917), (99, 58986), (103, 59025), (111, 59190), (117, 59238), (120, 59259), (135, 59373), (136, 59388), (146, 59478), (147, 59484), (148, 59490), (162, 59574), (168, 59637), (169, 59646), (170, 59673), (174, 59718), (178, 59781), (182, 59853), (185, 59907), (187, 59916), (189, 59925), (190, 59934), (191, 59940), (213, 60183), (224, 60252), (226, 60264), (227, 60267), (238, 60378), (269, 60648), (281, 60720), (286, 60759), (293, 60807), (303, 60888), (304, 60897), (309, 60939), (316, 60987), (319, 61002), (323, 61041),

Gene: BoomerJR\_82 Start: 58278, Stop: 61598, Start Num: 9

Candidate Starts for BoomerJR\_82:

(Start: 9 @58278 has 29 MA's), (16, 58350), (Start: 19 @58374 has 1 MA's), (22, 58455), (28, 58653), (41, 58833), (46, 58881), (51, 58938), (55, 58989), (56, 59007), (58, 59016), (61, 59052), (70, 59160), (72, 59169), (80, 59241), (93, 59379), (99, 59448), (108, 59613), (116, 59691), (134, 59853), (137, 59877), (148, 59976), (162, 60060), (169, 60132), (182, 60336), (185, 60390), (187, 60399), (190, 60417), (191, 60423), (197, 60537), (205, 60615), (208, 60639), (213, 60666), (239, 60918), (240, 60921), (242, 60939), (244, 60951), (254, 61041), (263, 61101), (269, 61143), (276, 61182), (277, 61188), (281, 61215), (286, 61254), (293, 61302), (294, 61311), (303, 61383), (305, 61395), (306, 61404), (308, 61431), (309, 61434), (312, 61449), (316, 61482), (323, 61536), (325, 61551),

Gene: Bordeaux\_80 Start: 58572, Stop: 61892, Start Num: 9

Candidate Starts for Bordeaux\_80:

(Start: 9 @58572 has 29 MA's), (15, 58623), (16, 58644), (Start: 19 @58668 has 1 MA's), (22, 58749), (28, 58947), (41, 59127), (44, 59160), (46, 59175), (51, 59232), (55, 59283), (56, 59301), (58, 59310), (61, 59346), (70, 59454), (72, 59463), (93, 59673), (99, 59742), (108, 59907), (116, 59985), (134, 60147), (148, 60270), (151, 60294), (162, 60354), (169, 60426), (182, 60630), (185, 60684), (187, 60693), (190, 60711), (191, 60717), (202, 60900), (205, 60909), (208, 60933), (213, 60960), (229, 61068), (246, 61257), (254, 61335), (260, 61377), (263, 61395), (269, 61437), (276, 61476), (277, 61482), (281, 61509), (286, 61548), (293, 61596), (294, 61605), (303, 61677), (306, 61698), (308, 61725), (309, 61728), (312, 61743), (316, 61776), (325, 61845),

Gene: Braelyn\_79 Start: 58581, Stop: 61865, Start Num: 10

Candidate Starts for Braelyn\_79:

(Start: 10 @58581 has 62 MA's), (14, 58626), (16, 58656), (18, 58674), (Start: 19 @58680 has 1 MA's), (28, 58959), (29, 58965), (36, 59061), (41, 59139), (51, 59244), (56, 59307), (57, 59313), (61, 59352), (72, 59469), (83, 59568), (93, 59679), (95, 59709), (99, 59748), (116, 59991), (120, 60021), (135, 60135), (136, 60150), (146, 60240), (147, 60246), (148, 60252), (162, 60336), (168, 60399), (169, 60408), (174, 60480), (178, 60543), (182, 60615), (185, 60669), (187, 60678), (189, 60687), (190, 60696), (191, 60702), (194, 60783), (201, 60882), (213, 60945), (224, 61014), (226, 61026), (243, 61212), (246, 61230), (256, 61326), (262, 61359), (269, 61410), (277, 61455), (286, 61521), (289, 61551), (293, 61569), (303, 61650), (307, 61680), (309, 61701), (316, 61749), (319, 61764),

Gene: CeilingFan\_84 Start: 58332, Stop: 61652, Start Num: 9

Candidate Starts for CeilingFan\_84:

(Start: 9 @58332 has 29 MA's), (15, 58383), (16, 58404), (Start: 19 @58428 has 1 MA's), (22, 58509), (28, 58707), (41, 58887), (46, 58935), (47, 58938), (51, 58992), (55, 59043), (56, 59061), (58, 59070), (61, 59106), (70, 59214), (72, 59223), (93, 59433), (99, 59502), (108, 59667), (116, 59745), (125, 59814), (134, 59907), (148, 60030), (162, 60114), (168, 60177), (169, 60186), (182, 60390), (185, 60444), (187, 60453), (190, 60471), (191, 60477), (205, 60669), (208, 60693), (213, 60720), (229, 60828), (246, 61017), (254, 61095), (260, 61137), (263, 61155), (269, 61197), (276, 61236), (277, 61242), (281, 61269), (286, 61308), (293, 61356), (303, 61437), (306, 61458), (308, 61485), (309, 61488), (312, 61503), (316, 61536), (325, 61605),

Gene: Circinus\_58 Start: 51862, Stop: 55149, Start Num: 10

Candidate Starts for Circinus\_58:

(Start: 10 @51862 has 62 MA's), (13, 51883), (16, 51934), (Start: 19 @51958 has 1 MA's), (23, 52054), (28, 52237), (34, 52297), (38, 52387), (41, 52417), (44, 52450), (45, 52459), (46, 52465), (51, 52522), (56, 52585), (61, 52630), (65, 52678), (93, 52957), (99, 53026), (106, 53158), (108, 53191), (117, 53278), (130, 53374), (135, 53413), (136, 53428), (147, 53524), (148, 53530), (153, 53563), (161, 53608), (162, 53614), (164, 53644), (169, 53686), (171, 53731), (174, 53758), (178, 53821), (182, 53893), (185, 53947), (187, 53956), (190, 53974), (191, 53980), (198, 54106), (201, 54160), (205, 54172), (213, 54223), (226, 54304), (228, 54310), (240, 54466), (269, 54688), (270, 54691), (286, 54799), (288, 54808), (293, 54847), (304, 54937), (309, 54979), (312, 54994), (319, 55042), (327, 55120),

Gene: Comrade\_61 Start: 49851, Stop: 53141, Start Num: 10

Candidate Starts for Comrade\_61:

(5, 49833), (Start: 10 @49851 has 62 MA's), (13, 49872), (15, 49902), (16, 49923), (18, 49941), (Start: 19 @49947 has 1 MA's), (24, 50115), (26, 50157), (28, 50226), (34, 50286), (40, 50400), (41, 50406), (51, 50511), (56, 50574), (57, 50580), (61, 50619), (80, 50808), (83, 50835), (92, 50937), (99, 51015), (114, 51243), (119, 51279), (130, 51363), (135, 51402), (146, 51507), (148, 51519), (153, 51552), (158, 51582), (159, 51585), (161, 51597), (162, 51603), (169, 51675), (173, 51741), (174, 51747), (178, 51810), (182, 51882), (185, 51936), (187, 51945), (190, 51963), (191, 51969), (197, 52083), (201, 52149), (205, 52161), (215, 52221), (216, 52224), (224, 52281), (225, 52287), (228, 52299), (232, 52335), (236, 52404), (257, 52602), (263, 52635), (268, 52671), (269, 52677), (273, 52689), (286, 52788), (288, 52797), (289, 52818), (295, 52848), (301, 52905), (309, 52968), (317, 53019), (319, 53031),

Gene: Cross\_80 Start: 59163, Stop: 62447, Start Num: 10

Candidate Starts for Cross\_80:

(Start: 10 @59163 has 62 MA's), (14, 59208), (16, 59238), (18, 59256), (Start: 19 @59262 has 1 MA's), (28, 59541), (36, 59643), (41, 59721), (51, 59826), (56, 59889), (57, 59895), (61, 59934), (72, 60051), (81, 60135), (93, 60261), (95, 60291), (99, 60330), (100, 60339), (112, 60537), (135, 60717), (146, 60822), (147, 60828), (148, 60834), (162, 60918), (164, 60948), (169, 60990), (170, 61017), (172, 61050), (174, 61062), (178, 61125), (182, 61197), (185, 61251), (187, 61260), (189, 61269), (190, 61278), (191, 61284), (213, 61527), (224, 61596), (226, 61608), (235, 61713), (256, 61908), (262, 61941), (269, 61992), (276, 62031), (277, 62037), (286, 62103), (293, 62151), (298, 62187), (303, 62232), (304, 62241), (309, 62283), (315, 62328), (316, 62331), (319, 62346),

Gene: Cursive\_78 Start: 58688, Stop: 61972, Start Num: 10

Candidate Starts for Cursive\_78:

(Start: 10 @58688 has 62 MA's), (14, 58733), (16, 58763), (18, 58781), (Start: 19 @58787 has 1 MA's), (28, 59066), (36, 59168), (41, 59246), (51, 59351), (56, 59414), (57, 59420), (61, 59459), (72, 59576), (81, 59660), (93, 59786), (95, 59816), (99, 59855), (100, 59864), (112, 60062), (135, 60242), (146, 60347), (147, 60353), (148, 60359), (162, 60443), (164, 60473), (169, 60515), (170, 60542), (172, 60575), (174, 60587), (178, 60650), (182, 60722), (185, 60776), (187, 60785), (189, 60794), (190, 60803), (191, 60809), (213, 61052), (224, 61121), (226, 61133), (235, 61238), (256, 61433), (262,

61466), (269, 61517), (276, 61556), (277, 61562), (286, 61628), (293, 61676), (298, 61712), (303, 61757), (304, 61766), (309, 61808), (315, 61853), (316, 61856), (319, 61871),

Gene: Daubenski\_81 Start: 58913, Stop: 62197, Start Num: 10

Candidate Starts for Daubenski\_81:

(1, 58784), (3, 58856), (Start: 10 @58913 has 62 MA's), (14, 58958), (16, 58988), (Start: 19 @59012 has 1 MA's), (28, 59291), (36, 59393), (37, 59420), (41, 59471), (42, 59483), (51, 59576), (56, 59639), (57, 59645), (61, 59684), (65, 59732), (72, 59801), (80, 59873), (83, 59900), (93, 60011), (99, 60080), (111, 60284), (122, 60374), (127, 60419), (135, 60467), (136, 60482), (146, 60572), (147, 60578), (148, 60584), (162, 60668), (168, 60731), (169, 60740), (174, 60812), (178, 60875), (182, 60947), (185, 61001), (187, 61010), (189, 61019), (190, 61028), (191, 61034), (194, 61115), (213, 61277), (224, 61346), (226, 61358), (238, 61472), (256, 61658), (262, 61691), (263, 61700), (269, 61742), (277, 61787), (286, 61853), (293, 61901), (298, 61937), (303, 61982), (308, 62030), (309, 62033), (313, 62069), (316, 62081), (319, 62096),

Gene: Dorin\_77 Start: 60424, Stop: 64227, Start Num: 8

Candidate Starts for Dorin\_77:

(Start: 8 @60424 has 2 MA's), (Start: 11 @60433 has 1 MA's), (18, 60523), (20, 60583), (23, 60625), (31, 60844), (33, 60859), (55, 61144), (58, 61171), (61, 61207), (70, 61315), (78, 61372), (82, 61417), (83, 61426), (90, 61513), (92, 61528), (94, 61540), (97, 61576), (101, 61618), (104, 61654), (114, 61840), (115, 61843), (124, 61930), (128, 61987), (140, 62086), (143, 62113), (159, 62209), (162, 62227), (166, 62269), (169, 62299), (174, 62371), (176, 62395), (184, 62539), (185, 62557), (190, 62584), (193, 62650), (194, 62671), (196, 62698), (198, 62716), (210, 62827), (211, 62833), (221, 62890), (231, 62968), (233, 63001), (239, 63103), (255, 63238), (259, 63274), (271, 63352), (275, 63382), (282, 63436), (284, 63445), (286, 63460), (299, 63562), (313, 63691), (317, 63706), (320, 63721), (321, 63727), (323, 63760), (329, 63814), (333, 63889), (335, 63916), (336, 63922), (337, 63928), (340, 63967), (341, 63979), (343, 64000), (349, 64069), (351, 64102), (355, 64126), (362, 64195),

Gene: EGole\_81 Start: 60108, Stop: 63392, Start Num: 10

Candidate Starts for EGole\_81:

(Start: 10 @60108 has 62 MA's), (14, 60153), (16, 60183), (18, 60201), (Start: 19 @60207 has 1 MA's), (28, 60486), (36, 60588), (41, 60666), (51, 60771), (56, 60834), (57, 60840), (61, 60879), (72, 60996), (81, 61080), (93, 61206), (95, 61236), (99, 61275), (135, 61662), (146, 61767), (147, 61773), (148, 61779), (151, 61803), (162, 61863), (164, 61893), (165, 61896), (169, 61935), (170, 61962), (172, 61995), (174, 62007), (178, 62070), (182, 62142), (185, 62196), (187, 62205), (189, 62214), (190, 62223), (191, 62229), (213, 62472), (224, 62541), (226, 62553), (230, 62574), (235, 62658), (256, 62853), (262, 62886), (269, 62937), (277, 62982), (286, 63048), (293, 63096), (298, 63132), (303, 63177), (304, 63186), (309, 63228), (315, 63273), (316, 63276), (319, 63291),

Gene: Elmer\_84 Start: 59515, Stop: 62835, Start Num: 9

Candidate Starts for Elmer\_84:

(4, 59485), (Start: 9 @59515 has 29 MA's), (15, 59566), (16, 59587), (Start: 19 @59611 has 1 MA's), (22, 59692), (28, 59890), (41, 60070), (46, 60118), (51, 60175), (55, 60226), (56, 60244), (58, 60253), (61, 60289), (72, 60406), (80, 60478), (93, 60616), (99, 60685), (108, 60850), (116, 60928), (134, 61090), (138, 61117), (148, 61213), (151, 61237), (162, 61297), (169, 61369), (182, 61573), (185, 61627), (187, 61636), (190, 61654), (191, 61660), (202, 61843), (205, 61852), (208, 61876), (213, 61903), (246, 62200), (254, 62278), (260, 62320), (269, 62380), (276, 62419), (277, 62425), (281, 62452), (286, 62491), (293, 62539), (294, 62548), (303, 62620), (308, 62668), (309, 62671), (315, 62716), (316, 62719), (323, 62773), (325, 62788),

Gene: Emma1919\_62 Start: 48644, Stop: 51934, Start Num: 10

Candidate Starts for Emma1919\_62:

(Start: 10 @48644 has 62 MA's), (12, 48659), (13, 48665), (16, 48716), (Start: 19 @48740 has 1 MA's), (25, 48929), (28, 49019), (34, 49079), (41, 49199), (51, 49304), (56, 49367), (57, 49373), (61, 49412), (89, 49685), (93, 49739), (95, 49769), (99, 49808), (104, 49856), (130, 50156), (135, 50195), (146, 50300), (147, 50306), (148, 50312), (153, 50345), (156, 50360), (159, 50378), (161, 50390), (162, 50396), (165, 50429), (168, 50459), (169, 50468), (173, 50534), (174, 50540), (175, 50549), (178, 50603), (182, 50675), (185, 50729), (187, 50738), (190, 50756), (191, 50762), (197, 50876), (201, 50942), (205, 50954), (215, 51014), (216, 51017), (225, 51080), (226, 51086), (228, 51092), (236, 51197), (240, 51248), (249, 51317), (256, 51386), (257, 51395), (268, 51464), (269, 51470), (273, 51482), (277, 51515), (278, 51518), (286, 51581), (288, 51590), (289, 51611), (292, 51623), (298, 51665), (309, 51761), (313, 51797), (315, 51806), (319, 51824), (329, 51920),

Gene: Enygma\_82 Start: 60218, Stop: 63538, Start Num: 9

Candidate Starts for Enygma\_82:

(Start: 9 @60218 has 29 MA's), (16, 60290), (Start: 19 @60314 has 1 MA's), (28, 60593), (41, 60773), (46, 60821), (51, 60878), (55, 60929), (56, 60947), (58, 60956), (61, 60992), (72, 61109), (93, 61319), (99, 61388), (108, 61553), (116, 61631), (134, 61793), (148, 61916), (157, 61973), (162, 62000), (169, 62072), (182, 62276), (185, 62330), (187, 62339), (190, 62357), (191, 62363), (197, 62477), (205, 62555), (208, 62579), (213, 62606), (229, 62714), (246, 62903), (254, 62981), (260, 63023), (263, 63041), (269, 63083), (277, 63128), (281, 63155), (286, 63194), (293, 63242), (294, 63251), (303, 63323), (305, 63335), (306, 63344), (308, 63371), (309, 63374), (315, 63419), (316, 63422), (323, 63476), (325, 63491),

Gene: Evy\_80 Start: 59063, Stop: 62347, Start Num: 10

Candidate Starts for Evy\_80:

(Start: 10 @59063 has 62 MA's), (14, 59108), (16, 59138), (18, 59156), (Start: 19 @59162 has 1 MA's), (21, 59228), (28, 59441), (41, 59621), (51, 59726), (56, 59789), (57, 59795), (61, 59834), (68, 59924), (72, 59951), (83, 60050), (93, 60161), (95, 60191), (96, 60194), (99, 60230), (116, 60473), (120, 60503), (135, 60617), (136, 60632), (146, 60722), (147, 60728), (148, 60734), (162, 60818), (168, 60881), (169, 60890), (170, 60917), (174, 60962), (178, 61025), (182, 61097), (185, 61151), (187, 61160), (189, 61169), (190, 61178), (191, 61184), (213, 61427), (224, 61496), (235, 61613), (245, 61703), (250, 61745), (256, 61808), (262, 61841), (269, 61892), (277, 61937), (286, 62003), (293, 62051), (303, 62132), (304, 62141), (309, 62183), (316, 62231), (319, 62246),

Gene: Faust\_61 Start: 49769, Stop: 53059, Start Num: 10

Candidate Starts for Faust\_61:

(Start: 10 @49769 has 62 MA's), (12, 49784), (13, 49790), (16, 49841), (Start: 19 @49865 has 1 MA's), (28, 50144), (34, 50204), (40, 50318), (41, 50324), (51, 50429), (56, 50492), (57, 50498), (61, 50537), (109, 51116), (130, 51281), (135, 51320), (146, 51425), (147, 51431), (148, 51437), (151, 51461), (159, 51503), (165, 51554), (169, 51593), (174, 51665), (178, 51728), (182, 51800), (185, 51854), (187, 51863), (189, 51872), (190, 51881), (191, 51887), (201, 52067), (205, 52079), (208, 52103), (215, 52139), (216, 52142), (224, 52199), (225, 52205), (228, 52217), (236, 52322), (246, 52415), (257, 52520), (259, 52532), (268, 52589), (269, 52595), (277, 52640), (286, 52706), (288, 52715), (295, 52766), (309, 52886), (317, 52937), (319, 52949), (328, 53036),

Gene: Forrest\_62 Start: 49341, Stop: 52631, Start Num: 10

Candidate Starts for Forrest\_62:

(Start: 10 @49341 has 62 MA's), (12, 49356), (13, 49362), (16, 49413), (Start: 19 @49437 has 1 MA's), (25, 49626), (28, 49716), (34, 49776), (41, 49896), (51, 50001), (56, 50064), (57, 50070), (61, 50109), (89, 50382), (93, 50436), (95, 50466), (99, 50505), (104, 50553), (130, 50853), (135, 50892), (146, 50997), (147, 51003), (148, 51009), (153, 51042), (156, 51057), (159, 51075), (161, 51087), (162, 51093), (165, 51126), (168, 51156), (169, 51165), (173, 51231), (174, 51237), (175, 51246), (178, 51300), (182, 51372), (185, 51426), (187, 51435), (190, 51453), (191, 51459), (197, 51573), (201, 51639), (205, 51651), (215, 51711), (216, 51714), (225, 51777), (226, 51783), (228, 51789), (236,

51894), (239, 51942), (240, 51945), (249, 52014), (256, 52083), (257, 52092), (268, 52161), (269, 52167), (273, 52179), (277, 52212), (278, 52215), (286, 52278), (288, 52287), (289, 52308), (292, 52320), (298, 52362), (309, 52458), (313, 52494), (315, 52503), (319, 52521), (329, 52617),

Gene: Francesca\_77 Start: 61162, Stop: 64965, Start Num: 8

Candidate Starts for Francesca\_77:

(Start: 8 @61162 has 2 MA's), (Start: 11 @61171 has 1 MA's), (18, 61261), (20, 61321), (23, 61363), (31, 61582), (33, 61597), (38, 61696), (40, 61720), (55, 61882), (58, 61909), (61, 61945), (70, 62053), (78, 62110), (82, 62155), (83, 62164), (90, 62251), (94, 62278), (97, 62314), (101, 62356), (104, 62392), (114, 62578), (115, 62581), (124, 62668), (128, 62725), (140, 62824), (143, 62851), (162, 62965), (166, 63007), (169, 63037), (174, 63109), (184, 63277), (185, 63295), (190, 63322), (193, 63388), (194, 63409), (196, 63436), (198, 63454), (210, 63565), (211, 63571), (221, 63628), (231, 63706), (233, 63739), (239, 63841), (255, 63976), (259, 64012), (271, 64090), (275, 64120), (282, 64174), (284, 64183), (299, 64300), (313, 64429), (317, 64444), (320, 64459), (329, 64552), (333, 64627), (335, 64654), (336, 64660), (337, 64666), (340, 64705), (341, 64717), (343, 64738), (349, 64807), (351, 64840), (355, 64864), (362, 64933),

Gene: Francob\_59 Start: 48697, Stop: 51987, Start Num: 10

Candidate Starts for Francob\_59:

(Start: 10 @48697 has 62 MA's), (13, 48718), (16, 48769), (Start: 19 @48793 has 1 MA's), (28, 49072), (34, 49132), (41, 49252), (51, 49357), (56, 49420), (57, 49426), (61, 49465), (68, 49555), (100, 49870), (104, 49909), (130, 50209), (135, 50248), (148, 50365), (153, 50398), (159, 50431), (162, 50449), (165, 50482), (169, 50521), (173, 50587), (174, 50593), (178, 50656), (182, 50728), (185, 50782), (187, 50791), (189, 50800), (190, 50809), (191, 50815), (197, 50929), (201, 50995), (205, 51007), (215, 51067), (216, 51070), (224, 51127), (225, 51133), (226, 51139), (228, 51145), (236, 51250), (240, 51301), (257, 51448), (268, 51517), (269, 51523), (273, 51535), (286, 51634), (288, 51643), (295, 51694), (299, 51727), (309, 51814), (317, 51865), (319, 51877),

Gene: Genie2\_82 Start: 58392, Stop: 61712, Start Num: 9

Candidate Starts for Genie2\_82:

(Start: 9 @58392 has 29 MA's), (16, 58464), (Start: 19 @58488 has 1 MA's), (22, 58569), (28, 58767), (41, 58947), (46, 58995), (51, 59052), (55, 59103), (56, 59121), (58, 59130), (61, 59166), (70, 59274), (72, 59283), (80, 59355), (93, 59493), (99, 59562), (108, 59727), (116, 59805), (134, 59967), (137, 59991), (148, 60090), (162, 60174), (169, 60246), (182, 60450), (185, 60504), (187, 60513), (190, 60531), (191, 60537), (197, 60651), (205, 60729), (208, 60753), (213, 60780), (239, 61032), (240, 61035), (242, 61053), (244, 61065), (254, 61155), (263, 61215), (269, 61257), (276, 61296), (277, 61302), (281, 61329), (286, 61368), (293, 61416), (294, 61425), (303, 61497), (305, 61509), (306, 61518), (308, 61545), (309, 61548), (312, 61563), (316, 61596), (323, 61650), (325, 61665),

Gene: Gibbi\_86 Start: 58555, Stop: 61875, Start Num: 9

Candidate Starts for Gibbi\_86:

(Start: 9 @58555 has 29 MA's), (15, 58606), (16, 58627), (Start: 19 @58651 has 1 MA's), (22, 58732), (28, 58930), (41, 59110), (46, 59158), (47, 59161), (51, 59215), (55, 59266), (56, 59284), (58, 59293), (61, 59329), (70, 59437), (72, 59446), (93, 59656), (99, 59725), (108, 59890), (116, 59968), (125, 60037), (134, 60130), (148, 60253), (162, 60337), (168, 60400), (169, 60409), (182, 60613), (185, 60667), (187, 60676), (190, 60694), (191, 60700), (205, 60892), (208, 60916), (213, 60943), (229, 61051), (246, 61240), (254, 61318), (260, 61360), (263, 61378), (269, 61420), (276, 61459), (277, 61465), (281, 61492), (286, 61531), (293, 61579), (303, 61660), (306, 61681), (308, 61708), (309, 61711), (312, 61726), (316, 61759), (325, 61828),

Gene: Gilson\_61 Start: 48597, Stop: 51887, Start Num: 10

Candidate Starts for Gilson\_61:

(Start: 10 @48597 has 62 MA's), (12, 48612), (13, 48618), (16, 48669), (Start: 19 @48693 has 1 MA's), (25, 48882), (28, 48972), (34, 49032), (41, 49152), (51, 49257), (56, 49320), (57, 49326), (61, 49365), (89, 49638), (93, 49692), (95, 49722), (99, 49761), (104, 49809), (130, 50109), (135, 50148), (146, 50253), (147, 50259), (148, 50265), (153, 50298), (156, 50313), (159, 50331), (161, 50343), (162, 50349), (165, 50382), (168, 50412), (169, 50421), (173, 50487), (174, 50493), (175, 50502), (178, 50556), (182, 50628), (185, 50682), (187, 50691), (190, 50709), (191, 50715), (197, 50829), (201, 50895), (205, 50907), (215, 50967), (216, 50970), (225, 51033), (226, 51039), (228, 51045), (236, 51150), (239, 51198), (240, 51201), (249, 51270), (256, 51339), (257, 51348), (268, 51417), (269, 51423), (273, 51435), (277, 51468), (278, 51471), (286, 51534), (288, 51543), (289, 51564), (292, 51576), (298, 51618), (309, 51714), (313, 51750), (315, 51759), (319, 51777), (329, 51873),

Gene: Grayson\_103 Start: 62973, Stop: 65801, Start Num: 73

Candidate Starts for Grayson\_103:

(66, 62925), (69, 62955), (71, 62961), (Start: 73 @62973 has 3 MA's), (80, 63051), (83, 63078), (98, 63255), (101, 63270), (114, 63492), (115, 63495), (119, 63528), (157, 63816), (159, 63825), (162, 63843), (163, 63867), (169, 63915), (174, 63987), (176, 64011), (185, 64173), (204, 64398), (217, 64473), (278, 64998), (284, 65046), (295, 65130), (297, 65145), (302, 65196), (307, 65232), (317, 65307), (321, 65328), (336, 65523), (337, 65529), (341, 65577), (345, 65637), (346, 65646), (351, 65700), (353, 65706), (360, 65778),

Gene: HangryHippo\_80 Start: 59162, Stop: 62446, Start Num: 10

Candidate Starts for HangryHippo\_80:

(Start: 10 @59162 has 62 MA's), (14, 59207), (16, 59237), (18, 59255), (Start: 19 @59261 has 1 MA's), (28, 59540), (36, 59642), (41, 59720), (51, 59825), (56, 59888), (57, 59894), (61, 59933), (72, 60050), (81, 60134), (93, 60260), (95, 60290), (99, 60329), (100, 60338), (112, 60536), (135, 60716), (146, 60821), (147, 60827), (148, 60833), (162, 60917), (164, 60947), (169, 60989), (170, 61016), (172, 61049), (174, 61061), (178, 61124), (182, 61196), (185, 61250), (187, 61259), (189, 61268), (190, 61277), (191, 61283), (213, 61526), (224, 61595), (226, 61607), (235, 61712), (256, 61907), (262, 61940), (269, 61991), (276, 62030), (277, 62036), (286, 62102), (293, 62150), (298, 62186), (303, 62231), (304, 62240), (309, 62282), (315, 62327), (316, 62330), (319, 62345),

Gene: IchabodCrane\_79 Start: 58144, Stop: 61464, Start Num: 9

Candidate Starts for IchabodCrane\_79:

(Start: 9 @58144 has 29 MA's), (15, 58195), (16, 58216), (Start: 19 @58240 has 1 MA's), (22, 58321), (28, 58519), (41, 58699), (46, 58747), (47, 58750), (51, 58804), (52, 58807), (55, 58855), (56, 58873), (58, 58882), (61, 58918), (70, 59026), (72, 59035), (93, 59245), (99, 59314), (108, 59479), (116, 59557), (125, 59626), (134, 59719), (148, 59842), (162, 59926), (168, 59989), (169, 59998), (182, 60202), (185, 60256), (187, 60265), (190, 60283), (191, 60289), (205, 60481), (208, 60505), (213, 60532), (229, 60640), (246, 60829), (254, 60907), (260, 60949), (263, 60967), (269, 61009), (276, 61048), (277, 61054), (281, 61081), (286, 61120), (293, 61168), (303, 61249), (306, 61270), (308, 61297), (309, 61300), (312, 61315), (316, 61348), (325, 61417),

Gene: Jada\_60 Start: 48523, Stop: 51813, Start Num: 10

Candidate Starts for Jada\_60:

(Start: 10 @48523 has 62 MA's), (12, 48538), (13, 48544), (16, 48595), (Start: 19 @48619 has 1 MA's), (25, 48808), (28, 48898), (34, 48958), (41, 49078), (51, 49183), (56, 49246), (57, 49252), (61, 49291), (89, 49564), (93, 49618), (95, 49648), (99, 49687), (104, 49735), (130, 50035), (135, 50074), (146, 50179), (147, 50185), (148, 50191), (153, 50224), (156, 50239), (159, 50257), (161, 50269), (162, 50275), (165, 50308), (168, 50338), (169, 50347), (173, 50413), (174, 50419), (175, 50428), (178, 50482), (182, 50554), (185, 50608), (187, 50617), (190, 50635), (191, 50641), (197, 50755), (201, 50821), (205, 50833), (215, 50893), (216, 50896), (225, 50959), (226, 50965), (228, 50971), (236, 51076), (239, 51124), (240, 51127), (249, 51196), (256, 51265), (257, 51274), (268, 51343), (269, 51349), (273, 51361), (277, 51394), (278, 51397), (286, 51460), (288, 51469), (289, 51490), (292,



51502), (298, 51544), (309, 51640), (313, 51676), (315, 51685), (319, 51703), (329, 51799),

Gene: Jay2Jay\_84 Start: 59915, Stop: 63199, Start Num: 10

Candidate Starts for Jay2Jay\_84:

(Start: 10 @59915 has 62 MA's), (14, 59960), (16, 59990), (18, 60008), (Start: 19 @60014 has 1 MA's), (21, 60080), (28, 60293), (41, 60473), (51, 60578), (56, 60641), (57, 60647), (61, 60686), (68, 60776), (72, 60803), (83, 60902), (93, 61013), (95, 61043), (99, 61082), (116, 61325), (120, 61355), (135, 61469), (136, 61484), (147, 61580), (148, 61586), (162, 61670), (168, 61733), (169, 61742), (170, 61769), (174, 61814), (178, 61877), (182, 61949), (185, 62003), (187, 62012), (189, 62021), (190, 62030), (191, 62036), (201, 62216), (213, 62279), (224, 62348), (235, 62465), (245, 62555), (250, 62597), (256, 62660), (262, 62693), (269, 62744), (276, 62783), (277, 62789), (286, 62855), (293, 62903), (298, 62939), (303, 62984), (304, 62993), (309, 63035), (316, 63083), (319, 63098),

Gene: JimJam\_82 Start: 58518, Stop: 61838, Start Num: 9

Candidate Starts for JimJam\_82:

(Start: 9 @58518 has 29 MA's), (15, 58569), (16, 58590), (Start: 19 @58614 has 1 MA's), (22, 58695), (28, 58893), (41, 59073), (46, 59121), (47, 59124), (51, 59178), (55, 59229), (56, 59247), (58, 59256), (61, 59292), (70, 59400), (72, 59409), (93, 59619), (99, 59688), (108, 59853), (116, 59931), (125, 60000), (134, 60093), (148, 60216), (162, 60300), (168, 60363), (169, 60372), (182, 60576), (185, 60630), (187, 60639), (190, 60657), (191, 60663), (205, 60855), (208, 60879), (213, 60906), (229, 61014), (246, 61203), (254, 61281), (260, 61323), (263, 61341), (269, 61383), (276, 61422), (277, 61428), (281, 61455), (286, 61494), (293, 61542), (303, 61623), (306, 61644), (308, 61671), (309, 61674), (312, 61689), (316, 61722), (325, 61791),

Gene: Jollison\_81 Start: 58400, Stop: 61720, Start Num: 9

Candidate Starts for Jollison\_81:

(Start: 9 @58400 has 29 MA's), (15, 58451), (16, 58472), (Start: 19 @58496 has 1 MA's), (22, 58577), (28, 58775), (41, 58955), (46, 59003), (51, 59060), (55, 59111), (56, 59129), (58, 59138), (61, 59174), (70, 59282), (72, 59291), (93, 59501), (99, 59570), (108, 59735), (116, 59813), (134, 59975), (148, 60098), (151, 60122), (162, 60182), (168, 60245), (169, 60254), (182, 60458), (185, 60512), (187, 60521), (190, 60539), (191, 60545), (202, 60728), (205, 60737), (208, 60761), (213, 60788), (229, 60896), (246, 61085), (254, 61163), (260, 61205), (263, 61223), (269, 61265), (276, 61304), (277, 61310), (281, 61337), (286, 61376), (293, 61424), (294, 61433), (303, 61505), (306, 61526), (308, 61553), (309, 61556), (312, 61571), (316, 61604), (325, 61673),

Gene: Karimac\_81 Start: 58549, Stop: 61869, Start Num: 9

Candidate Starts for Karimac\_81:

(Start: 9 @58549 has 29 MA's), (15, 58600), (16, 58621), (Start: 19 @58645 has 1 MA's), (22, 58726), (28, 58924), (41, 59104), (46, 59152), (47, 59155), (51, 59209), (55, 59260), (56, 59278), (58, 59287), (61, 59323), (70, 59431), (72, 59440), (93, 59650), (99, 59719), (108, 59884), (116, 59962), (125, 60031), (134, 60124), (148, 60247), (162, 60331), (168, 60394), (169, 60403), (182, 60607), (185, 60661), (187, 60670), (190, 60688), (191, 60694), (205, 60886), (208, 60910), (213, 60937), (229, 61045), (246, 61234), (254, 61312), (260, 61354), (263, 61372), (269, 61414), (276, 61453), (277, 61459), (281, 61486), (286, 61525), (293, 61573), (303, 61654), (306, 61675), (308, 61702), (309, 61705), (312, 61720), (316, 61753), (325, 61822),

Gene: Karp\_59 Start: 49450, Stop: 52740, Start Num: 10

Candidate Starts for Karp\_59:

(5, 49432), (Start: 10 @49450 has 62 MA's), (12, 49465), (13, 49471), (15, 49501), (16, 49522), (18, 49540), (Start: 19 @49546 has 1 MA's), (24, 49714), (26, 49756), (28, 49825), (34, 49885), (40, 49999), (41, 50005), (51, 50110), (56, 50173), (57, 50179), (61, 50218), (80, 50407), (86, 50464), (89, 50491), (92, 50536), (114, 50842), (119, 50878), (130, 50962), (135, 51001), (146, 51106), (148, 51118), (153, 51151), (158, 51181), (159, 51184), (161, 51196), (162, 51202), (169, 51274), (173,

51340), (174, 51346), (178, 51409), (182, 51481), (185, 51535), (187, 51544), (190, 51562), (191, 51568), (197, 51682), (201, 51748), (205, 51760), (215, 51820), (216, 51823), (224, 51880), (225, 51886), (228, 51898), (232, 51934), (236, 52003), (257, 52201), (263, 52234), (268, 52270), (269, 52276), (273, 52288), (283, 52369), (286, 52387), (288, 52396), (289, 52417), (295, 52447), (301, 52504), (309, 52567), (319, 52630),

Gene: Kenrey\_62 Start: 48788, Stop: 52078, Start Num: 10

Candidate Starts for Kenrey\_62:

(Start: 10 @48788 has 62 MA's), (13, 48809), (15, 48839), (16, 48860), (Start: 19 @48884 has 1 MA's), (28, 49163), (34, 49223), (40, 49337), (41, 49343), (42, 49355), (51, 49448), (56, 49511), (57, 49517), (61, 49556), (64, 49583), (83, 49772), (85, 49787), (99, 49952), (104, 50000), (130, 50300), (135, 50339), (148, 50456), (153, 50489), (159, 50522), (162, 50540), (165, 50573), (169, 50612), (173, 50678), (174, 50684), (178, 50747), (182, 50819), (185, 50873), (187, 50882), (190, 50900), (191, 50906), (197, 51020), (201, 51086), (205, 51098), (215, 51158), (216, 51161), (228, 51236), (234, 51299), (236, 51341), (249, 51461), (257, 51539), (268, 51608), (269, 51614), (283, 51707), (286, 51725), (288, 51734), (289, 51755), (295, 51785), (299, 51818), (309, 51905), (311, 51917), (313, 51941), (319, 51968),

Gene: KentuckyRacer\_82 Start: 58333, Stop: 61653, Start Num: 9

Candidate Starts for KentuckyRacer\_82:

(Start: 9 @58333 has 29 MA's), (15, 58384), (16, 58405), (Start: 19 @58429 has 1 MA's), (22, 58510), (28, 58708), (41, 58888), (46, 58936), (51, 58993), (55, 59044), (56, 59062), (58, 59071), (61, 59107), (70, 59215), (72, 59224), (93, 59434), (99, 59503), (108, 59668), (116, 59746), (125, 59815), (134, 59908), (148, 60031), (162, 60115), (168, 60178), (169, 60187), (182, 60391), (185, 60445), (187, 60454), (190, 60472), (191, 60478), (205, 60670), (208, 60694), (213, 60721), (229, 60829), (246, 61018), (254, 61096), (260, 61138), (263, 61156), (269, 61198), (276, 61237), (277, 61243), (281, 61270), (286, 61309), (293, 61357), (303, 61438), (306, 61459), (308, 61486), (309, 61489), (312, 61504), (316, 61537), (325, 61606),

Gene: Larnav\_80 Start: 59147, Stop: 62431, Start Num: 10

Candidate Starts for Larnav\_80:

(Start: 10 @59147 has 62 MA's), (14, 59192), (16, 59222), (18, 59240), (Start: 19 @59246 has 1 MA's), (28, 59525), (36, 59627), (41, 59705), (51, 59810), (56, 59873), (57, 59879), (61, 59918), (72, 60035), (81, 60119), (93, 60245), (95, 60275), (99, 60314), (112, 60521), (135, 60701), (146, 60806), (147, 60812), (148, 60818), (162, 60902), (164, 60932), (169, 60974), (170, 61001), (172, 61034), (174, 61046), (178, 61109), (182, 61181), (185, 61235), (187, 61244), (189, 61253), (190, 61262), (191, 61268), (213, 61511), (224, 61580), (226, 61592), (235, 61697), (256, 61892), (262, 61925), (269, 61976), (277, 62021), (286, 62087), (293, 62135), (303, 62216), (304, 62225), (309, 62267), (315, 62312), (316, 62315), (319, 62330),

Gene: Leo04\_81 Start: 59662, Stop: 62946, Start Num: 10

Candidate Starts for Leo04\_81:

(Start: 10 @59662 has 62 MA's), (14, 59707), (16, 59737), (18, 59755), (Start: 19 @59761 has 1 MA's), (28, 60040), (36, 60142), (41, 60220), (51, 60325), (56, 60388), (57, 60394), (61, 60433), (72, 60550), (81, 60634), (93, 60760), (95, 60790), (99, 60829), (100, 60838), (112, 61036), (135, 61216), (146, 61321), (147, 61327), (148, 61333), (162, 61417), (164, 61447), (169, 61489), (170, 61516), (172, 61549), (174, 61561), (178, 61624), (182, 61696), (185, 61750), (187, 61759), (189, 61768), (190, 61777), (191, 61783), (213, 62026), (224, 62095), (226, 62107), (235, 62212), (256, 62407), (262, 62440), (269, 62491), (276, 62530), (277, 62536), (286, 62602), (293, 62650), (298, 62686), (303, 62731), (304, 62740), (309, 62782), (315, 62827), (316, 62830), (319, 62845),

Gene: Liandry\_78 Start: 58566, Stop: 61850, Start Num: 10

Candidate Starts for Liandry\_78:

(Start: 10 @58566 has 62 MA's), (14, 58611), (16, 58641), (18, 58659), (Start: 19 @58665 has 1 MA's), (21, 58731), (28, 58944), (29, 58950), (36, 59046), (41, 59124), (51, 59229), (56, 59292), (57, 59298), (61, 59337), (72, 59454), (83, 59553), (93, 59664), (95, 59694), (99, 59733), (116, 59976), (135, 60120), (136, 60135), (147, 60231), (148, 60237), (151, 60261), (162, 60321), (168, 60384), (169, 60393), (174, 60465), (178, 60528), (182, 60600), (185, 60654), (187, 60663), (189, 60672), (190, 60681), (191, 60687), (194, 60768), (201, 60867), (213, 60930), (224, 60999), (226, 61011), (243, 61197), (246, 61215), (256, 61311), (262, 61344), (269, 61395), (276, 61434), (277, 61440), (286, 61506), (289, 61536), (293, 61554), (298, 61590), (303, 61635), (304, 61644), (307, 61665), (309, 61686), (316, 61734), (319, 61749),

Gene: LilMartin\_77 Start: 57396, Stop: 60680, Start Num: 10

Candidate Starts for LilMartin\_77:

(2, 57312), (3, 57339), (Start: 10 @57396 has 62 MA's), (14, 57441), (16, 57471), (18, 57489), (Start: 19 @57495 has 1 MA's), (28, 57774), (36, 57876), (41, 57954), (42, 57966), (51, 58059), (56, 58122), (57, 58128), (61, 58167), (72, 58284), (76, 58323), (83, 58383), (93, 58494), (95, 58524), (103, 58602), (114, 58791), (117, 58815), (120, 58836), (135, 58950), (136, 58965), (146, 59055), (147, 59061), (148, 59067), (151, 59091), (152, 59094), (162, 59151), (165, 59184), (168, 59214), (169, 59223), (174, 59295), (175, 59304), (178, 59358), (182, 59430), (185, 59484), (187, 59493), (189, 59502), (190, 59511), (191, 59517), (194, 59598), (213, 59760), (224, 59829), (226, 59841), (238, 59955), (267, 60216), (269, 60225), (286, 60336), (293, 60384), (303, 60465), (309, 60516), (316, 60564), (319, 60579),

Gene: Limpid\_57 Start: 47705, Stop: 50995, Start Num: 10

Candidate Starts for Limpid\_57:

(Start: 10 @47705 has 62 MA's), (16, 47777), (18, 47795), (Start: 19 @47801 has 1 MA's), (28, 48080), (34, 48140), (51, 48365), (56, 48428), (59, 48455), (60, 48470), (61, 48473), (93, 48800), (131, 49229), (135, 49256), (140, 49310), (147, 49367), (148, 49373), (169, 49529), (170, 49556), (174, 49601), (178, 49664), (181, 49733), (182, 49736), (185, 49790), (187, 49799), (189, 49808), (190, 49817), (191, 49823), (197, 49937), (205, 50015), (208, 50039), (215, 50075), (224, 50135), (225, 50141), (236, 50258), (242, 50327), (257, 50456), (259, 50468), (268, 50525), (269, 50531), (286, 50642), (288, 50651), (289, 50672), (295, 50702), (298, 50726), (299, 50735), (309, 50822), (317, 50873), (319, 50885), (328, 50972),

Gene: LukeCage\_81 Start: 58309, Stop: 61629, Start Num: 9

Candidate Starts for LukeCage\_81:

(Start: 9 @58309 has 29 MA's), (15, 58360), (16, 58381), (Start: 19 @58405 has 1 MA's), (22, 58486), (28, 58684), (41, 58864), (46, 58912), (47, 58915), (51, 58969), (55, 59020), (56, 59038), (58, 59047), (61, 59083), (72, 59200), (93, 59410), (99, 59479), (116, 59722), (120, 59752), (134, 59884), (148, 60007), (162, 60091), (169, 60163), (182, 60367), (185, 60421), (187, 60430), (190, 60448), (191, 60454), (205, 60646), (208, 60670), (213, 60697), (229, 60805), (238, 60904), (239, 60949), (244, 60982), (246, 60994), (254, 61072), (260, 61114), (263, 61132), (269, 61174), (276, 61213), (277, 61219), (281, 61246), (286, 61285), (293, 61333), (294, 61342), (303, 61414), (305, 61426), (306, 61435), (308, 61462), (309, 61465), (315, 61510), (316, 61513), (323, 61567), (325, 61582),

Gene: Lululemon\_79 Start: 58543, Stop: 61827, Start Num: 10

Candidate Starts for Lululemon\_79:

(Start: 10 @58543 has 62 MA's), (14, 58588), (16, 58618), (18, 58636), (Start: 19 @58642 has 1 MA's), (28, 58921), (36, 59023), (41, 59101), (51, 59206), (56, 59269), (57, 59275), (61, 59314), (72, 59431), (81, 59515), (93, 59641), (95, 59671), (99, 59710), (100, 59719), (112, 59917), (135, 60097), (146, 60202), (147, 60208), (148, 60214), (162, 60298), (164, 60328), (169, 60370), (170, 60397), (172, 60430), (174, 60442), (178, 60505), (182, 60577), (185, 60631), (187, 60640), (189, 60649), (190, 60658), (191, 60664), (213, 60907), (224, 60976), (226, 60988), (235, 61093), (256, 61288), (262, 61321), (269, 61372), (276, 61411), (277, 61417), (286, 61483), (293, 61531), (298, 61567), (303,

61612), (304, 61621), (309, 61663), (315, 61708), (316, 61711), (319, 61726),

Gene: Marsus\_78 Start: 57668, Stop: 60952, Start Num: 10

Candidate Starts for Marsus\_78:

(2, 57584), (3, 57611), (Start: 10 @57668 has 62 MA's), (14, 57713), (16, 57743), (18, 57761), (Start: 19 @57767 has 1 MA's), (28, 58046), (36, 58148), (41, 58226), (42, 58238), (48, 58313), (51, 58331), (56, 58394), (57, 58400), (61, 58439), (72, 58556), (83, 58655), (93, 58766), (95, 58796), (103, 58874), (117, 59087), (120, 59108), (135, 59222), (136, 59237), (146, 59327), (147, 59333), (148, 59339), (151, 59363), (152, 59366), (162, 59423), (165, 59456), (168, 59486), (169, 59495), (174, 59567), (175, 59576), (178, 59630), (182, 59702), (185, 59756), (187, 59765), (189, 59774), (190, 59783), (191, 59789), (194, 59870), (213, 60032), (224, 60101), (226, 60113), (238, 60227), (269, 60497), (286, 60608), (293, 60656), (298, 60692), (303, 60737), (309, 60788), (316, 60836), (319, 60851),

Gene: MeganTheeKilla\_59 Start: 47958, Stop: 51248, Start Num: 10

Candidate Starts for MeganTheeKilla\_59:

(Start: 10 @47958 has 62 MA's), (12, 47973), (13, 47979), (16, 48030), (Start: 19 @48054 has 1 MA's), (25, 48243), (28, 48333), (34, 48393), (41, 48513), (51, 48618), (56, 48681), (57, 48687), (61, 48726), (89, 48999), (93, 49053), (95, 49083), (99, 49122), (104, 49170), (130, 49470), (135, 49509), (146, 49614), (147, 49620), (148, 49626), (153, 49659), (156, 49674), (159, 49692), (161, 49704), (162, 49710), (165, 49743), (168, 49773), (169, 49782), (173, 49848), (174, 49854), (175, 49863), (178, 49917), (182, 49989), (185, 50043), (187, 50052), (190, 50070), (191, 50076), (197, 50190), (201, 50256), (205, 50268), (215, 50328), (216, 50331), (225, 50394), (226, 50400), (228, 50406), (236, 50511), (239, 50559), (240, 50562), (249, 50631), (256, 50700), (257, 50709), (268, 50778), (269, 50784), (273, 50796), (277, 50829), (278, 50832), (286, 50895), (288, 50904), (289, 50925), (292, 50937), (298, 50979), (309, 51075), (313, 51111), (315, 51120), (319, 51138), (329, 51234),

Gene: Mildred21\_78 Start: 57592, Stop: 60879, Start Num: 10

Candidate Starts for Mildred21\_78:

(Start: 10 @57592 has 62 MA's), (14, 57640), (16, 57670), (18, 57688), (Start: 19 @57694 has 1 MA's), (21, 57760), (28, 57973), (29, 57979), (36, 58075), (41, 58153), (51, 58258), (56, 58321), (57, 58327), (61, 58366), (72, 58483), (83, 58582), (93, 58693), (95, 58723), (99, 58762), (103, 58801), (116, 59005), (120, 59035), (135, 59149), (136, 59164), (147, 59260), (148, 59266), (156, 59314), (162, 59350), (168, 59413), (169, 59422), (174, 59494), (178, 59557), (179, 59608), (182, 59629), (185, 59683), (187, 59692), (189, 59701), (190, 59710), (191, 59716), (213, 59959), (224, 60028), (226, 60040), (235, 60145), (262, 60373), (269, 60424), (277, 60469), (286, 60535), (289, 60565), (293, 60583), (298, 60619), (303, 60664), (309, 60715), (316, 60763), (319, 60778),

Gene: MindFlayer\_79 Start: 58051, Stop: 61371, Start Num: 9

Candidate Starts for MindFlayer\_79:

(Start: 9 @58051 has 29 MA's), (15, 58102), (16, 58123), (Start: 19 @58147 has 1 MA's), (22, 58228), (28, 58426), (41, 58606), (46, 58654), (47, 58657), (51, 58711), (55, 58762), (56, 58780), (58, 58789), (61, 58825), (70, 58933), (72, 58942), (93, 59152), (99, 59221), (108, 59386), (116, 59464), (134, 59626), (142, 59713), (148, 59749), (162, 59833), (168, 59896), (169, 59905), (182, 60109), (185, 60163), (187, 60172), (190, 60190), (191, 60196), (202, 60379), (205, 60388), (208, 60412), (213, 60439), (229, 60547), (238, 60646), (246, 60736), (254, 60814), (260, 60856), (263, 60874), (269, 60916), (276, 60955), (277, 60961), (281, 60988), (286, 61027), (293, 61075), (294, 61084), (303, 61156), (306, 61177), (308, 61204), (309, 61207), (312, 61222), (316, 61255), (325, 61324),

Gene: Moab\_61 Start: 49797, Stop: 53087, Start Num: 10

Candidate Starts for Moab\_61:

(Start: 10 @49797 has 62 MA's), (12, 49812), (16, 49869), (18, 49887), (Start: 19 @49893 has 1 MA's), (26, 50103), (28, 50172), (29, 50178), (30, 50202), (34, 50232), (40, 50346), (41, 50352), (42, 50364), (51, 50457), (56, 50520), (57, 50526), (61, 50565), (68, 50655), (83, 50781), (93, 50892), (99, 50961),

(102, 50988), (107, 51105), (130, 51309), (135, 51348), (144, 51447), (147, 51459), (148, 51465), (153, 51498), (159, 51531), (162, 51549), (168, 51612), (169, 51621), (173, 51687), (174, 51693), (178, 51756), (182, 51828), (185, 51882), (187, 51891), (189, 51900), (190, 51909), (191, 51915), (198, 52041), (205, 52107), (215, 52167), (216, 52170), (224, 52227), (228, 52245), (236, 52350), (239, 52398), (246, 52443), (257, 52548), (268, 52617), (269, 52623), (286, 52734), (288, 52743), (289, 52764), (299, 52827), (309, 52914), (317, 52965), (319, 52977), (325, 53031),

Gene: Mugiwara\_83 Start: 58808, Stop: 62128, Start Num: 9

Candidate Starts for Mugiwara\_83:

(Start: 9 @58808 has 29 MA's), (15, 58859), (16, 58880), (Start: 19 @58904 has 1 MA's), (22, 58985), (28, 59183), (41, 59363), (46, 59411), (51, 59468), (52, 59471), (55, 59519), (56, 59537), (58, 59546), (61, 59582), (72, 59699), (93, 59909), (99, 59978), (108, 60143), (116, 60221), (134, 60383), (148, 60506), (162, 60590), (169, 60662), (182, 60866), (185, 60920), (187, 60929), (190, 60947), (191, 60953), (205, 61145), (208, 61169), (213, 61196), (229, 61304), (239, 61448), (244, 61481), (246, 61493), (254, 61571), (260, 61613), (263, 61631), (269, 61673), (276, 61712), (277, 61718), (281, 61745), (286, 61784), (293, 61832), (294, 61841), (303, 61913), (306, 61934), (308, 61961), (309, 61964), (315, 62009), (316, 62012), (323, 62066), (325, 62081),

Gene: MulchMansion\_77 Start: 57396, Stop: 60680, Start Num: 10

Candidate Starts for MulchMansion\_77:

(2, 57312), (3, 57339), (Start: 10 @57396 has 62 MA's), (14, 57441), (16, 57471), (18, 57489), (Start: 19 @57495 has 1 MA's), (28, 57774), (36, 57876), (41, 57954), (42, 57966), (51, 58059), (56, 58122), (57, 58128), (61, 58167), (72, 58284), (76, 58323), (83, 58383), (93, 58494), (95, 58524), (103, 58602), (114, 58791), (117, 58815), (120, 58836), (135, 58950), (136, 58965), (146, 59055), (147, 59061), (148, 59067), (151, 59091), (152, 59094), (162, 59151), (165, 59184), (168, 59214), (169, 59223), (174, 59295), (175, 59304), (178, 59358), (182, 59430), (185, 59484), (187, 59493), (189, 59502), (190, 59511), (191, 59517), (194, 59598), (213, 59760), (224, 59829), (226, 59841), (238, 59955), (267, 60216), (269, 60225), (286, 60336), (293, 60384), (303, 60465), (309, 60516), (316, 60564), (319, 60579),

Gene: Muntaha\_58 Start: 50102, Stop: 53389, Start Num: 10

Candidate Starts for Muntaha\_58:

(Start: 10 @50102 has 62 MA's), (16, 50174), (Start: 19 @50198 has 1 MA's), (23, 50294), (28, 50477), (34, 50537), (38, 50627), (41, 50657), (43, 50672), (45, 50699), (46, 50705), (51, 50762), (56, 50825), (61, 50870), (65, 50918), (87, 51122), (92, 51188), (93, 51197), (106, 51398), (108, 51431), (116, 51509), (120, 51539), (130, 51614), (135, 51653), (136, 51668), (147, 51764), (148, 51770), (153, 51803), (161, 51848), (162, 51854), (167, 51902), (169, 51926), (170, 51953), (171, 51971), (174, 51998), (178, 52061), (182, 52133), (185, 52187), (187, 52196), (190, 52214), (191, 52220), (198, 52346), (201, 52400), (205, 52412), (213, 52463), (215, 52472), (224, 52532), (240, 52706), (247, 52757), (259, 52865), (268, 52922), (269, 52928), (278, 52976), (286, 53039), (288, 53048), (304, 53177), (309, 53219), (312, 53234), (319, 53282),

Gene: Navo\_77 Start: 58485, Stop: 61769, Start Num: 10

Candidate Starts for Navo\_77:

(Start: 10 @58485 has 62 MA's), (14, 58530), (16, 58560), (18, 58578), (Start: 19 @58584 has 1 MA's), (28, 58863), (29, 58869), (36, 58965), (41, 59043), (51, 59148), (56, 59211), (57, 59217), (61, 59256), (72, 59373), (83, 59472), (93, 59583), (95, 59613), (99, 59652), (116, 59895), (120, 59925), (135, 60039), (136, 60054), (146, 60144), (147, 60150), (148, 60156), (162, 60240), (168, 60303), (169, 60312), (174, 60384), (178, 60447), (182, 60519), (185, 60573), (187, 60582), (189, 60591), (190, 60600), (191, 60606), (194, 60687), (201, 60786), (213, 60849), (224, 60918), (226, 60930), (243, 61116), (246, 61134), (256, 61230), (262, 61263), (269, 61314), (277, 61359), (286, 61425), (289, 61455), (293, 61473), (298, 61509), (303, 61554), (307, 61584), (309, 61605), (316, 61653), (319, 61668),

Gene: NiceHouse\_90 Start: 64900, Stop: 68652, Start Num: 11

Candidate Starts for NiceHouse\_90:

(Start: 11 @64900 has 1 MA's), (14, 64942), (32, 65314), (33, 65326), (38, 65425), (41, 65455), (43, 65470), (46, 65503), (47, 65506), (52, 65563), (53, 65581), (55, 65605), (57, 65629), (61, 65668), (62, 65683), (63, 65689), (64, 65695), (67, 65755), (76, 65824), (83, 65881), (87, 65917), (89, 65938), (101, 66073), (105, 66148), (110, 66256), (123, 66379), (131, 66457), (133, 66469), (136, 66499), (139, 66520), (150, 66613), (151, 66619), (155, 66637), (163, 66703), (166, 66721), (169, 66751), (170, 66778), (174, 66823), (185, 67009), (188, 67024), (190, 67036), (210, 67279), (216, 67306), (218, 67312), (243, 67564), (246, 67588), (248, 67612), (252, 67651), (259, 67708), (261, 67714), (263, 67735), (264, 67744), (272, 67798), (274, 67813), (275, 67825), (284, 67888), (285, 67894), (291, 67945), (295, 67972), (314, 68137), (317, 68149), (332, 68308), (333, 68332), (334, 68353), (337, 68371), (338, 68398), (339, 68401), (341, 68422), (346, 68491), (347, 68494), (356, 68590), (357, 68596), (359, 68620), (360, 68626),

Gene: NootNoot\_75 Start: 57480, Stop: 60764, Start Num: 10

Candidate Starts for NootNoot\_75:

(Start: 10 @57480 has 62 MA's), (14, 57525), (16, 57555), (18, 57573), (Start: 19 @57579 has 1 MA's), (21, 57645), (28, 57858), (29, 57864), (36, 57960), (41, 58038), (51, 58143), (56, 58206), (57, 58212), (61, 58251), (72, 58368), (83, 58467), (93, 58578), (95, 58608), (99, 58647), (116, 58890), (135, 59034), (136, 59049), (147, 59145), (148, 59151), (151, 59175), (162, 59235), (168, 59298), (169, 59307), (174, 59379), (178, 59442), (182, 59514), (185, 59568), (187, 59577), (189, 59586), (190, 59595), (191, 59601), (194, 59682), (201, 59781), (213, 59844), (224, 59913), (226, 59925), (243, 60111), (246, 60129), (256, 60225), (262, 60258), (269, 60309), (277, 60354), (286, 60420), (289, 60450), (293, 60468), (298, 60504), (303, 60549), (304, 60558), (307, 60579), (309, 60600), (316, 60648), (319, 60663),

Gene: Nova53\_75 Start: 59972, Stop: 63763, Start Num: 6

Candidate Starts for Nova53\_75:

(6, 59972), (7, 59978), (17, 60059), (27, 60308), (33, 60410), (42, 60551), (49, 60629), (50, 60641), (54, 60674), (55, 60695), (58, 60722), (59, 60740), (61, 60758), (75, 60905), (77, 60920), (79, 60941), (83, 60974), (88, 61019), (97, 61124), (98, 61151), (108, 61325), (113, 61385), (126, 61499), (128, 61535), (130, 61541), (141, 61649), (145, 61676), (155, 61733), (160, 61760), (162, 61775), (166, 61817), (169, 61847), (174, 61919), (176, 61943), (185, 62105), (190, 62132), (195, 62240), (196, 62246), (199, 62282), (200, 62312), (203, 62327), (210, 62381), (220, 62426), (221, 62441), (231, 62519), (233, 62552), (239, 62654), (251, 62765), (255, 62789), (259, 62825), (271, 62903), (278, 62948), (280, 62963), (282, 62987), (284, 62996), (288, 63020), (301, 63137), (317, 63257), (318, 63260), (323, 63311), (326, 63338), (330, 63392), (331, 63398), (332, 63416), (333, 63440), (335, 63467), (336, 63473), (337, 63479), (341, 63530), (343, 63551), (344, 63563), (349, 63620), (351, 63653), (357, 63704), (361, 63743), (362, 63746),

Gene: PacManQ\_79 Start: 58543, Stop: 61827, Start Num: 10

Candidate Starts for PacManQ\_79:

(Start: 10 @58543 has 62 MA's), (14, 58588), (16, 58618), (18, 58636), (Start: 19 @58642 has 1 MA's), (28, 58921), (36, 59023), (41, 59101), (51, 59206), (56, 59269), (57, 59275), (61, 59314), (72, 59431), (81, 59515), (93, 59641), (95, 59671), (99, 59710), (100, 59719), (112, 59917), (135, 60097), (146, 60202), (147, 60208), (148, 60214), (162, 60298), (164, 60328), (169, 60370), (170, 60397), (172, 60430), (174, 60442), (178, 60505), (182, 60577), (185, 60631), (187, 60640), (189, 60649), (190, 60658), (191, 60664), (213, 60907), (224, 60976), (226, 60988), (235, 61093), (256, 61288), (262, 61321), (269, 61372), (276, 61411), (277, 61417), (286, 61483), (293, 61531), (298, 61567), (303, 61612), (304, 61621), (309, 61663), (315, 61708), (316, 61711), (319, 61726),

Gene: Paradiddles\_75 Start: 57744, Stop: 61028, Start Num: 10

Candidate Starts for Paradiddles\_75:

(Start: 10 @57744 has 62 MA's), (14, 57789), (16, 57819), (18, 57837), (Start: 19 @57843 has 1 MA's), (21, 57909), (28, 58122), (29, 58128), (36, 58224), (41, 58302), (51, 58407), (56, 58470), (57, 58476), (61, 58515), (72, 58632), (83, 58731), (93, 58842), (95, 58872), (99, 58911), (116, 59154), (135, 59298), (136, 59313), (146, 59403), (147, 59409), (148, 59415), (151, 59439), (162, 59499), (168, 59562), (169, 59571), (174, 59643), (178, 59706), (182, 59778), (185, 59832), (187, 59841), (189, 59850), (190, 59859), (191, 59865), (194, 59946), (201, 60045), (213, 60108), (224, 60177), (226, 60189), (243, 60375), (246, 60393), (256, 60489), (262, 60522), (269, 60573), (276, 60612), (277, 60618), (286, 60684), (289, 60714), (293, 60732), (298, 60768), (303, 60813), (304, 60822), (307, 60843), (309, 60864), (316, 60912), (319, 60927),

Gene: Patelgo\_60 Start: 49984, Stop: 53274, Start Num: 10

Candidate Starts for Patelgo\_60:

(Start: 10 @49984 has 62 MA's), (12, 49999), (16, 50056), (18, 50074), (Start: 19 @50080 has 1 MA's), (26, 50290), (28, 50359), (29, 50365), (30, 50389), (34, 50419), (40, 50533), (41, 50539), (42, 50551), (51, 50644), (56, 50707), (57, 50713), (61, 50752), (68, 50842), (83, 50968), (93, 51079), (99, 51148), (102, 51175), (130, 51496), (135, 51535), (144, 51634), (147, 51646), (148, 51652), (151, 51676), (153, 51685), (159, 51718), (162, 51736), (168, 51799), (169, 51808), (173, 51874), (174, 51880), (178, 51943), (182, 52015), (185, 52069), (187, 52078), (189, 52087), (190, 52096), (191, 52102), (198, 52228), (205, 52294), (215, 52354), (216, 52357), (224, 52414), (228, 52432), (234, 52495), (236, 52537), (239, 52585), (257, 52735), (268, 52804), (269, 52810), (286, 52921), (288, 52930), (289, 52951), (299, 53014), (309, 53101), (317, 53152), (319, 53164), (325, 53218),

Gene: Peebs\_79 Start: 58897, Stop: 62181, Start Num: 10

Candidate Starts for Peebs\_79:

(Start: 10 @58897 has 62 MA's), (14, 58942), (16, 58972), (18, 58990), (Start: 19 @58996 has 1 MA's), (28, 59275), (36, 59377), (41, 59455), (51, 59560), (56, 59623), (57, 59629), (61, 59668), (72, 59785), (81, 59869), (93, 59995), (95, 60025), (99, 60064), (100, 60073), (135, 60451), (146, 60556), (147, 60562), (148, 60568), (151, 60592), (162, 60652), (164, 60682), (165, 60685), (169, 60724), (170, 60751), (174, 60796), (178, 60859), (182, 60931), (185, 60985), (187, 60994), (189, 61003), (190, 61012), (191, 61018), (213, 61261), (224, 61330), (226, 61342), (235, 61447), (256, 61642), (262, 61675), (269, 61726), (277, 61771), (286, 61837), (293, 61885), (298, 61921), (303, 61966), (304, 61975), (309, 62017), (315, 62062), (316, 62065), (319, 62080),

Gene: Pepperwood\_80 Start: 59030, Stop: 62314, Start Num: 10

Candidate Starts for Pepperwood\_80:

(Start: 10 @59030 has 62 MA's), (14, 59075), (16, 59105), (18, 59123), (Start: 19 @59129 has 1 MA's), (28, 59408), (41, 59588), (51, 59693), (56, 59756), (57, 59762), (61, 59801), (72, 59918), (81, 60002), (93, 60128), (95, 60158), (99, 60197), (100, 60206), (112, 60404), (135, 60584), (146, 60689), (147, 60695), (148, 60701), (162, 60785), (164, 60815), (169, 60857), (170, 60884), (172, 60917), (174, 60929), (178, 60992), (182, 61064), (185, 61118), (187, 61127), (189, 61136), (190, 61145), (191, 61151), (213, 61394), (224, 61463), (226, 61475), (235, 61580), (256, 61775), (262, 61808), (269, 61859), (277, 61904), (286, 61970), (293, 62018), (298, 62054), (303, 62099), (304, 62108), (309, 62150), (315, 62195), (316, 62198), (319, 62213),

Gene: Peregrin\_100 Start: 61340, Stop: 64219, Start Num: 73

Candidate Starts for Peregrin\_100:

(66, 61292), (69, 61322), (71, 61328), (Start: 73 @61340 has 3 MA's), (80, 61418), (83, 61445), (101, 61637), (114, 61859), (115, 61862), (119, 61895), (157, 62183), (162, 62210), (163, 62234), (169, 62282), (174, 62354), (176, 62378), (185, 62540), (190, 62567), (207, 62825), (209, 62849), (212, 62876), (221, 62921), (223, 62948), (231, 62987), (241, 63128), (246, 63173), (252, 63236), (257, 63281), (278, 63416), (284, 63464), (290, 63512), (295, 63548), (297, 63563), (307, 63650), (313, 63710), (317, 63725), (321, 63746), (336, 63941), (337, 63947), (339, 63974), (341, 63995), (343,



64016), (345, 64055), (346, 64064), (351, 64118), (353, 64124), (360, 64196),

Gene: Persimmon\_77 Start: 57413, Stop: 60697, Start Num: 10

Candidate Starts for Persimmon\_77:

(Start: 10 @57413 has 62 MA's), (14, 57458), (16, 57488), (18, 57506), (Start: 19 @57512 has 1 MA's), (21, 57578), (28, 57791), (29, 57797), (36, 57893), (41, 57971), (51, 58076), (56, 58139), (57, 58145), (61, 58184), (72, 58301), (83, 58400), (93, 58511), (95, 58541), (99, 58580), (116, 58823), (135, 58967), (136, 58982), (147, 59078), (148, 59084), (151, 59108), (162, 59168), (168, 59231), (169, 59240), (174, 59312), (178, 59375), (182, 59447), (185, 59501), (187, 59510), (189, 59519), (190, 59528), (191, 59534), (194, 59615), (201, 59714), (213, 59777), (224, 59846), (226, 59858), (243, 60044), (246, 60062), (256, 60158), (262, 60191), (269, 60242), (276, 60281), (277, 60287), (286, 60353), (289, 60383), (293, 60401), (298, 60437), (303, 60482), (304, 60491), (307, 60512), (309, 60533), (316, 60581), (319, 60596),

Gene: Phredrick\_60 Start: 47859, Stop: 51149, Start Num: 10

Candidate Starts for Phredrick\_60:

(Start: 10 @47859 has 62 MA's), (13, 47880), (15, 47910), (16, 47931), (Start: 19 @47955 has 1 MA's), (28, 48234), (34, 48294), (40, 48408), (41, 48414), (42, 48426), (51, 48519), (56, 48582), (57, 48588), (61, 48627), (64, 48654), (83, 48843), (85, 48858), (99, 49023), (104, 49071), (130, 49371), (135, 49410), (148, 49527), (153, 49560), (159, 49593), (162, 49611), (165, 49644), (169, 49683), (173, 49749), (174, 49755), (178, 49818), (182, 49890), (185, 49944), (187, 49953), (190, 49971), (191, 49977), (197, 50091), (201, 50157), (205, 50169), (215, 50229), (216, 50232), (228, 50307), (234, 50370), (236, 50412), (249, 50532), (257, 50610), (268, 50679), (269, 50685), (283, 50778), (286, 50796), (288, 50805), (289, 50826), (295, 50856), (299, 50889), (309, 50976), (311, 50988), (313, 51012), (319, 51039),

Gene: PinkiePie\_78 Start: 58566, Stop: 61850, Start Num: 10

Candidate Starts for PinkiePie\_78:

(Start: 10 @58566 has 62 MA's), (14, 58611), (16, 58641), (18, 58659), (Start: 19 @58665 has 1 MA's), (21, 58731), (28, 58944), (29, 58950), (36, 59046), (41, 59124), (51, 59229), (56, 59292), (57, 59298), (61, 59337), (72, 59454), (83, 59553), (93, 59664), (95, 59694), (99, 59733), (116, 59976), (135, 60120), (136, 60135), (147, 60231), (148, 60237), (151, 60261), (162, 60321), (168, 60384), (169, 60393), (174, 60465), (178, 60528), (182, 60600), (185, 60654), (187, 60663), (189, 60672), (190, 60681), (191, 60687), (194, 60768), (201, 60867), (213, 60930), (224, 60999), (226, 61011), (243, 61197), (246, 61215), (256, 61311), (262, 61344), (269, 61395), (276, 61434), (277, 61440), (286, 61506), (289, 61536), (293, 61554), (298, 61590), (303, 61635), (304, 61644), (307, 61665), (309, 61686), (316, 61734), (319, 61749),

Gene: PumpkinSpice\_81 Start: 58443, Stop: 61763, Start Num: 9

Candidate Starts for PumpkinSpice\_81:

(Start: 9 @58443 has 29 MA's), (15, 58494), (16, 58515), (Start: 19 @58539 has 1 MA's), (22, 58620), (28, 58818), (41, 58998), (46, 59046), (51, 59103), (55, 59154), (56, 59172), (58, 59181), (61, 59217), (70, 59325), (72, 59334), (93, 59544), (99, 59613), (108, 59778), (116, 59856), (134, 60018), (148, 60141), (151, 60165), (162, 60225), (168, 60288), (169, 60297), (182, 60501), (185, 60555), (187, 60564), (190, 60582), (191, 60588), (202, 60771), (205, 60780), (208, 60804), (213, 60831), (229, 60939), (246, 61128), (254, 61206), (260, 61248), (263, 61266), (269, 61308), (276, 61347), (277, 61353), (281, 61380), (286, 61419), (293, 61467), (294, 61476), (303, 61548), (306, 61569), (308, 61596), (309, 61599), (312, 61614), (316, 61647), (325, 61716),

Gene: Quaran19\_81 Start: 58434, Stop: 61754, Start Num: 9

Candidate Starts for Quaran19\_81:

(Start: 9 @58434 has 29 MA's), (15, 58485), (16, 58506), (Start: 19 @58530 has 1 MA's), (22, 58611), (28, 58809), (41, 58989), (46, 59037), (51, 59094), (55, 59145), (56, 59163), (58, 59172), (61, 59208),

(70, 59316), (72, 59325), (93, 59535), (99, 59604), (108, 59769), (116, 59847), (134, 60009), (148, 60132), (151, 60156), (162, 60216), (168, 60279), (169, 60288), (182, 60492), (185, 60546), (187, 60555), (190, 60573), (191, 60579), (202, 60762), (205, 60771), (208, 60795), (213, 60822), (229, 60930), (246, 61119), (254, 61197), (260, 61239), (263, 61257), (269, 61299), (276, 61338), (277, 61344), (281, 61371), (286, 61410), (293, 61458), (294, 61467), (303, 61539), (306, 61560), (308, 61587), (309, 61590), (312, 61605), (316, 61638), (325, 61707),

Gene: Rikishi\_84 Start: 58349, Stop: 61669, Start Num: 9

Candidate Starts for Rikishi\_84:

(Start: 9 @58349 has 29 MA's), (15, 58400), (16, 58421), (Start: 19 @58445 has 1 MA's), (22, 58526), (28, 58724), (41, 58904), (46, 58952), (51, 59009), (55, 59060), (56, 59078), (58, 59087), (61, 59123), (70, 59231), (72, 59240), (93, 59450), (99, 59519), (108, 59684), (116, 59762), (134, 59924), (148, 60047), (151, 60071), (162, 60131), (168, 60194), (169, 60203), (182, 60407), (185, 60461), (187, 60470), (190, 60488), (191, 60494), (202, 60677), (205, 60686), (208, 60710), (213, 60737), (229, 60845), (246, 61034), (254, 61112), (260, 61154), (263, 61172), (269, 61214), (276, 61253), (277, 61259), (281, 61286), (286, 61325), (293, 61373), (294, 61382), (303, 61454), (306, 61475), (308, 61502), (309, 61505), (312, 61520), (316, 61553), (325, 61622),

Gene: Riptide\_77 Start: 57198, Stop: 60482, Start Num: 10

Candidate Starts for Riptide\_77:

(Start: 10 @57198 has 62 MA's), (14, 57243), (16, 57273), (Start: 19 @57297 has 1 MA's), (28, 57576), (32, 57615), (36, 57678), (41, 57756), (42, 57768), (51, 57861), (56, 57924), (57, 57930), (61, 57969), (72, 58086), (83, 58185), (93, 58296), (99, 58365), (103, 58404), (117, 58617), (135, 58752), (136, 58767), (146, 58857), (147, 58863), (148, 58869), (162, 58953), (168, 59016), (169, 59025), (170, 59052), (174, 59097), (178, 59160), (182, 59232), (185, 59286), (187, 59295), (189, 59304), (190, 59313), (191, 59319), (213, 59562), (224, 59631), (226, 59643), (227, 59646), (269, 60027), (281, 60099), (286, 60138), (293, 60186), (303, 60267), (304, 60276), (309, 60318), (316, 60366), (319, 60381), (323, 60420),

Gene: SaltySpittoon\_81 Start: 58443, Stop: 61763, Start Num: 9

Candidate Starts for SaltySpittoon\_81:

(Start: 9 @58443 has 29 MA's), (15, 58494), (16, 58515), (Start: 19 @58539 has 1 MA's), (22, 58620), (28, 58818), (41, 58998), (46, 59046), (47, 59049), (51, 59103), (55, 59154), (56, 59172), (58, 59181), (61, 59217), (70, 59325), (72, 59334), (93, 59544), (99, 59613), (108, 59778), (116, 59856), (134, 60018), (148, 60141), (151, 60165), (162, 60225), (168, 60288), (169, 60297), (182, 60501), (185, 60555), (187, 60564), (190, 60582), (191, 60588), (202, 60771), (205, 60780), (208, 60804), (213, 60831), (229, 60939), (246, 61128), (254, 61206), (260, 61248), (263, 61266), (269, 61308), (276, 61347), (277, 61353), (281, 61380), (286, 61419), (293, 61467), (294, 61476), (303, 61548), (306, 61569), (308, 61596), (309, 61599), (312, 61614), (316, 61647), (325, 61716),

Gene: Samisti12\_80 Start: 60339, Stop: 63623, Start Num: 10

Candidate Starts for Samisti12\_80:

(Start: 10 @60339 has 62 MA's), (14, 60384), (16, 60414), (18, 60432), (Start: 19 @60438 has 1 MA's), (28, 60717), (36, 60819), (41, 60897), (42, 60909), (51, 61002), (56, 61065), (57, 61071), (61, 61110), (72, 61227), (81, 61311), (93, 61437), (95, 61467), (99, 61506), (135, 61893), (146, 61998), (147, 62004), (148, 62010), (152, 62037), (162, 62094), (164, 62124), (169, 62166), (170, 62193), (174, 62238), (178, 62301), (182, 62373), (185, 62427), (187, 62436), (189, 62445), (190, 62454), (191, 62460), (213, 62703), (224, 62772), (226, 62784), (235, 62889), (256, 63084), (262, 63117), (269, 63168), (276, 63207), (277, 63213), (286, 63279), (293, 63327), (298, 63363), (303, 63408), (304, 63417), (309, 63459), (315, 63504), (316, 63507), (319, 63522),

Gene: Scheme\_81 Start: 59744, Stop: 63028, Start Num: 10

Candidate Starts for Scheme\_81:

(Start: 10 @59744 has 62 MA's), (14, 59789), (16, 59819), (18, 59837), (Start: 19 @59843 has 1 MA's), (28, 60122), (36, 60224), (41, 60302), (51, 60407), (56, 60470), (57, 60476), (61, 60515), (72, 60632), (81, 60716), (93, 60842), (95, 60872), (99, 60911), (135, 61298), (146, 61403), (147, 61409), (148, 61415), (151, 61439), (162, 61499), (164, 61529), (165, 61532), (169, 61571), (170, 61598), (172, 61631), (174, 61643), (178, 61706), (182, 61778), (185, 61832), (187, 61841), (189, 61850), (190, 61859), (191, 61865), (213, 62108), (224, 62177), (226, 62189), (235, 62294), (256, 62489), (262, 62522), (269, 62573), (277, 62618), (286, 62684), (293, 62732), (298, 62768), (303, 62813), (304, 62822), (309, 62864), (315, 62909), (316, 62912), (319, 62927),

Gene: SeresaTree\_61 Start: 49159, Stop: 52449, Start Num: 10

Candidate Starts for SeresaTree\_61:

(Start: 10 @49159 has 62 MA's), (12, 49174), (13, 49180), (16, 49231), (Start: 19 @49255 has 1 MA's), (28, 49534), (34, 49594), (40, 49708), (41, 49714), (51, 49819), (56, 49882), (57, 49888), (61, 49927), (109, 50506), (130, 50671), (135, 50710), (146, 50815), (147, 50821), (148, 50827), (151, 50851), (159, 50893), (165, 50944), (169, 50983), (174, 51055), (178, 51118), (182, 51190), (185, 51244), (187, 51253), (189, 51262), (190, 51271), (191, 51277), (201, 51457), (205, 51469), (208, 51493), (215, 51529), (216, 51532), (224, 51589), (225, 51595), (228, 51607), (236, 51712), (246, 51805), (257, 51910), (259, 51922), (268, 51979), (269, 51985), (277, 52030), (286, 52096), (288, 52105), (295, 52156), (299, 52189), (309, 52276), (317, 52327), (319, 52339), (328, 52426),

Gene: Sham\_57 Start: 49701, Stop: 52991, Start Num: 10

Candidate Starts for Sham\_57:

(Start: 10 @49701 has 62 MA's), (12, 49716), (13, 49722), (15, 49752), (16, 49773), (18, 49791), (Start: 19 @49797 has 1 MA's), (27, 50025), (28, 50076), (30, 50106), (34, 50136), (35, 50139), (40, 50250), (41, 50256), (51, 50361), (56, 50424), (57, 50430), (61, 50469), (93, 50796), (95, 50826), (99, 50865), (109, 51048), (130, 51213), (135, 51252), (137, 51270), (147, 51363), (148, 51369), (153, 51402), (159, 51435), (161, 51447), (164, 51483), (165, 51486), (169, 51525), (174, 51597), (178, 51660), (179, 51711), (182, 51732), (185, 51786), (187, 51795), (189, 51804), (190, 51813), (191, 51819), (205, 52011), (215, 52071), (216, 52074), (224, 52131), (225, 52137), (228, 52149), (232, 52185), (236, 52254), (246, 52347), (257, 52452), (268, 52521), (269, 52527), (273, 52539), (286, 52638), (288, 52647), (289, 52668), (295, 52698), (299, 52731), (309, 52818), (310, 52827), (317, 52869), (319, 52881),

Gene: Shuckle\_78 Start: 59352, Stop: 62636, Start Num: 10

Candidate Starts for Shuckle\_78:

(Start: 10 @59352 has 62 MA's), (14, 59397), (16, 59427), (18, 59445), (Start: 19 @59451 has 1 MA's), (28, 59730), (36, 59832), (41, 59910), (51, 60015), (56, 60078), (57, 60084), (58, 60087), (61, 60123), (72, 60240), (81, 60324), (83, 60339), (93, 60450), (95, 60480), (99, 60519), (135, 60906), (146, 61011), (147, 61017), (148, 61023), (151, 61047), (162, 61107), (164, 61137), (165, 61140), (169, 61179), (170, 61206), (174, 61251), (178, 61314), (182, 61386), (185, 61440), (187, 61449), (189, 61458), (190, 61467), (191, 61473), (213, 61716), (224, 61785), (226, 61797), (230, 61818), (235, 61902), (256, 62097), (262, 62130), (269, 62181), (277, 62226), (286, 62292), (293, 62340), (303, 62421), (309, 62472), (315, 62517), (316, 62520), (319, 62535),

Gene: Sollertia\_82 Start: 58392, Stop: 61712, Start Num: 9

Candidate Starts for Sollertia\_82:

(Start: 9 @58392 has 29 MA's), (16, 58464), (Start: 19 @58488 has 1 MA's), (22, 58569), (28, 58767), (41, 58947), (46, 58995), (51, 59052), (55, 59103), (56, 59121), (58, 59130), (61, 59166), (72, 59283), (80, 59355), (91, 59478), (93, 59493), (108, 59727), (116, 59805), (134, 59967), (137, 59991), (148, 60090), (162, 60174), (169, 60246), (182, 60450), (185, 60504), (187, 60513), (190, 60531), (191, 60537), (197, 60651), (205, 60729), (208, 60753), (213, 60780), (240, 61035), (242, 61053), (244, 61065), (254, 61155), (263, 61215), (269, 61257), (277, 61302), (281, 61329), (286, 61368), (293, 61416), (294, 61425), (303, 61497), (306, 61518), (308, 61545), (309, 61548), (316, 61596), (324,

61662), (325, 61665),

Gene: SparkleGoddess\_61 Start: 49852, Stop: 53142, Start Num: 10

Candidate Starts for SparkleGoddess\_61:

(5, 49834), (Start: 10 @49852 has 62 MA's), (12, 49867), (13, 49873), (15, 49903), (16, 49924), (18, 49942), (Start: 19 @49948 has 1 MA's), (24, 50116), (26, 50158), (28, 50227), (34, 50287), (40, 50401), (41, 50407), (51, 50512), (56, 50575), (57, 50581), (61, 50620), (80, 50809), (86, 50866), (89, 50893), (92, 50938), (114, 51244), (119, 51280), (130, 51364), (135, 51403), (146, 51508), (148, 51520), (153, 51553), (158, 51583), (159, 51586), (161, 51598), (162, 51604), (169, 51676), (173, 51742), (174, 51748), (178, 51811), (182, 51883), (185, 51937), (187, 51946), (190, 51964), (191, 51970), (197, 52084), (201, 52150), (205, 52162), (208, 52186), (215, 52222), (216, 52225), (224, 52282), (225, 52288), (228, 52300), (232, 52336), (236, 52405), (257, 52603), (263, 52636), (268, 52672), (269, 52678), (273, 52690), (286, 52789), (288, 52798), (289, 52819), (295, 52849), (301, 52906), (309, 52969), (317, 53020), (319, 53032),

Gene: Spelly\_82 Start: 58398, Stop: 61718, Start Num: 9

Candidate Starts for Spelly\_82:

(Start: 9 @58398 has 29 MA's), (15, 58449), (16, 58470), (Start: 19 @58494 has 1 MA's), (22, 58575), (28, 58773), (41, 58953), (46, 59001), (51, 59058), (52, 59061), (55, 59109), (56, 59127), (58, 59136), (61, 59172), (70, 59280), (72, 59289), (93, 59499), (99, 59568), (108, 59733), (116, 59811), (134, 59973), (148, 60096), (151, 60120), (162, 60180), (168, 60243), (169, 60252), (182, 60456), (185, 60510), (187, 60519), (190, 60537), (191, 60543), (202, 60726), (205, 60735), (208, 60759), (213, 60786), (229, 60894), (246, 61083), (254, 61161), (260, 61203), (263, 61221), (269, 61263), (276, 61302), (277, 61308), (281, 61335), (286, 61374), (293, 61422), (294, 61431), (303, 61503), (306, 61524), (308, 61551), (309, 61554), (312, 61569), (316, 61602), (325, 61671),

Gene: Spilled\_83 Start: 58515, Stop: 61835, Start Num: 9

Candidate Starts for Spilled\_83:

(Start: 9 @58515 has 29 MA's), (15, 58566), (16, 58587), (Start: 19 @58611 has 1 MA's), (22, 58692), (28, 58890), (41, 59070), (46, 59118), (47, 59121), (51, 59175), (52, 59178), (55, 59226), (56, 59244), (58, 59253), (61, 59289), (70, 59397), (72, 59406), (93, 59616), (99, 59685), (108, 59850), (116, 59928), (125, 59997), (134, 60090), (148, 60213), (162, 60297), (168, 60360), (169, 60369), (182, 60573), (185, 60627), (187, 60636), (190, 60654), (191, 60660), (205, 60852), (208, 60876), (213, 60903), (229, 61011), (246, 61200), (254, 61278), (260, 61320), (263, 61338), (269, 61380), (276, 61419), (277, 61425), (281, 61452), (286, 61491), (293, 61539), (303, 61620), (306, 61641), (308, 61668), (309, 61671), (312, 61686), (316, 61719), (325, 61788),

Gene: Squillium\_79 Start: 58567, Stop: 61851, Start Num: 10

Candidate Starts for Squillium\_79:

(Start: 10 @58567 has 62 MA's), (14, 58612), (16, 58642), (18, 58660), (Start: 19 @58666 has 1 MA's), (21, 58732), (28, 58945), (29, 58951), (36, 59047), (41, 59125), (51, 59230), (56, 59293), (57, 59299), (61, 59338), (72, 59455), (83, 59554), (93, 59665), (95, 59695), (99, 59734), (116, 59977), (135, 60121), (136, 60136), (147, 60232), (148, 60238), (151, 60262), (162, 60322), (168, 60385), (169, 60394), (174, 60466), (178, 60529), (182, 60601), (185, 60655), (187, 60664), (189, 60673), (190, 60682), (191, 60688), (194, 60769), (201, 60868), (213, 60931), (224, 61000), (226, 61012), (243, 61198), (246, 61216), (256, 61312), (262, 61345), (269, 61396), (276, 61435), (277, 61441), (286, 61507), (289, 61537), (293, 61555), (298, 61591), (303, 61636), (304, 61645), (307, 61666), (309, 61687), (316, 61735), (319, 61750),

Gene: Stanimal\_82 Start: 58281, Stop: 61601, Start Num: 9

Candidate Starts for Stanimal\_82:

(Start: 9 @58281 has 29 MA's), (16, 58353), (Start: 19 @58377 has 1 MA's), (22, 58458), (28, 58656), (41, 58836), (46, 58884), (51, 58941), (55, 58992), (56, 59010), (58, 59019), (61, 59055), (70, 59163),

(72, 59172), (80, 59244), (93, 59382), (99, 59451), (108, 59616), (116, 59694), (134, 59856), (137, 59880), (148, 59979), (162, 60063), (169, 60135), (182, 60339), (185, 60393), (187, 60402), (190, 60420), (191, 60426), (197, 60540), (205, 60618), (208, 60642), (213, 60669), (239, 60921), (240, 60924), (242, 60942), (244, 60954), (254, 61044), (263, 61104), (269, 61146), (276, 61185), (277, 61191), (281, 61218), (286, 61257), (293, 61305), (294, 61314), (303, 61386), (305, 61398), (306, 61407), (308, 61434), (309, 61437), (312, 61452), (316, 61485), (323, 61539), (325, 61554),

Gene: StarPlatinum\_82 Start: 58954, Stop: 62274, Start Num: 9

Candidate Starts for StarPlatinum\_82:

(Start: 9 @58954 has 29 MA's), (15, 59005), (16, 59026), (Start: 19 @59050 has 1 MA's), (22, 59131), (28, 59329), (39, 59485), (41, 59509), (46, 59557), (47, 59560), (51, 59614), (55, 59665), (56, 59683), (58, 59692), (61, 59728), (70, 59836), (72, 59845), (80, 59917), (93, 60055), (99, 60124), (108, 60289), (116, 60367), (134, 60529), (148, 60652), (162, 60736), (169, 60808), (182, 61012), (185, 61066), (187, 61075), (190, 61093), (191, 61099), (205, 61291), (208, 61315), (213, 61342), (224, 61423), (229, 61450), (239, 61594), (240, 61597), (242, 61615), (244, 61627), (254, 61717), (263, 61777), (269, 61819), (276, 61858), (277, 61864), (281, 61891), (286, 61930), (293, 61978), (294, 61987), (303, 62059), (305, 62071), (306, 62080), (308, 62107), (309, 62110), (315, 62155), (316, 62158), (323, 62212), (325, 62227),

Gene: Starbow\_80 Start: 58419, Stop: 61739, Start Num: 9

Candidate Starts for Starbow\_80:

(Start: 9 @58419 has 29 MA's), (15, 58470), (16, 58491), (Start: 19 @58515 has 1 MA's), (22, 58596), (28, 58794), (41, 58974), (46, 59022), (51, 59079), (52, 59082), (55, 59130), (56, 59148), (58, 59157), (61, 59193), (70, 59301), (72, 59310), (93, 59520), (99, 59589), (108, 59754), (116, 59832), (134, 59994), (148, 60117), (162, 60201), (168, 60264), (169, 60273), (182, 60477), (185, 60531), (187, 60540), (190, 60558), (191, 60564), (202, 60747), (205, 60756), (208, 60780), (213, 60807), (229, 60915), (246, 61104), (254, 61182), (260, 61224), (263, 61242), (269, 61284), (276, 61323), (277, 61329), (281, 61356), (286, 61395), (293, 61443), (294, 61452), (303, 61524), (306, 61545), (308, 61572), (309, 61575), (312, 61590), (316, 61623), (325, 61692),

Gene: Stigma\_60 Start: 49866, Stop: 53156, Start Num: 10

Candidate Starts for Stigma\_60:

(5, 49848), (Start: 10 @49866 has 62 MA's), (13, 49887), (15, 49917), (16, 49938), (18, 49956), (Start: 19 @49962 has 1 MA's), (24, 50130), (26, 50172), (28, 50241), (34, 50301), (40, 50415), (41, 50421), (51, 50526), (56, 50589), (57, 50595), (61, 50634), (80, 50823), (86, 50880), (89, 50907), (92, 50952), (114, 51258), (119, 51294), (130, 51378), (135, 51417), (146, 51522), (148, 51534), (151, 51558), (153, 51567), (158, 51597), (159, 51600), (162, 51618), (169, 51690), (173, 51756), (174, 51762), (178, 51825), (182, 51897), (185, 51951), (187, 51960), (190, 51978), (191, 51984), (197, 52098), (201, 52164), (205, 52176), (215, 52236), (216, 52239), (224, 52296), (225, 52302), (228, 52314), (232, 52350), (236, 52419), (253, 52587), (257, 52617), (263, 52650), (268, 52686), (269, 52692), (273, 52704), (286, 52803), (288, 52812), (289, 52833), (295, 52863), (301, 52920), (309, 52983), (317, 53034), (319, 53046),

Gene: Sushi23\_79 Start: 59255, Stop: 62539, Start Num: 10

Candidate Starts for Sushi23\_79:

(Start: 10 @59255 has 62 MA's), (14, 59300), (16, 59330), (18, 59348), (Start: 19 @59354 has 1 MA's), (28, 59633), (36, 59735), (41, 59813), (51, 59918), (56, 59981), (57, 59987), (61, 60026), (72, 60143), (81, 60227), (93, 60353), (95, 60383), (99, 60422), (100, 60431), (112, 60629), (135, 60809), (146, 60914), (147, 60920), (148, 60926), (162, 61010), (164, 61040), (169, 61082), (170, 61109), (172, 61142), (174, 61154), (178, 61217), (182, 61289), (185, 61343), (187, 61352), (189, 61361), (190, 61370), (191, 61376), (213, 61619), (224, 61688), (226, 61700), (235, 61805), (256, 62000), (262, 62033), (269, 62084), (277, 62129), (286, 62195), (293, 62243), (298, 62279), (303, 62324), (304, 62333), (309, 62375), (315, 62420), (316, 62423), (319, 62438),

Gene: Targaryen\_80 Start: 59965, Stop: 63249, Start Num: 10

Candidate Starts for Targaryen\_80:

(Start: 10 @59965 has 62 MA's), (14, 60010), (16, 60040), (18, 60058), (Start: 19 @60064 has 1 MA's), (21, 60130), (28, 60343), (41, 60523), (51, 60628), (56, 60691), (57, 60697), (61, 60736), (68, 60826), (72, 60853), (83, 60952), (93, 61063), (95, 61093), (96, 61096), (99, 61132), (116, 61375), (120, 61405), (135, 61519), (136, 61534), (146, 61624), (147, 61630), (148, 61636), (162, 61720), (168, 61783), (169, 61792), (174, 61864), (178, 61927), (182, 61999), (185, 62053), (187, 62062), (189, 62071), (190, 62080), (191, 62086), (213, 62329), (224, 62398), (235, 62515), (243, 62596), (245, 62605), (250, 62647), (256, 62710), (262, 62743), (269, 62794), (277, 62839), (286, 62905), (293, 62953), (303, 63034), (304, 63043), (309, 63085), (316, 63133), (319, 63148),

Gene: Teutsch\_80 Start: 59518, Stop: 62802, Start Num: 10

Candidate Starts for Teutsch\_80:

(Start: 10 @59518 has 62 MA's), (14, 59563), (16, 59593), (18, 59611), (Start: 19 @59617 has 1 MA's), (28, 59896), (36, 59998), (41, 60076), (51, 60181), (56, 60244), (57, 60250), (61, 60289), (72, 60406), (81, 60490), (93, 60616), (95, 60646), (99, 60685), (112, 60892), (135, 61072), (146, 61177), (147, 61183), (148, 61189), (151, 61213), (162, 61273), (164, 61303), (165, 61306), (169, 61345), (170, 61372), (174, 61417), (178, 61480), (182, 61552), (185, 61606), (187, 61615), (189, 61624), (190, 61633), (191, 61639), (213, 61882), (224, 61951), (226, 61963), (235, 62068), (256, 62263), (262, 62296), (269, 62347), (277, 62392), (286, 62458), (293, 62506), (303, 62587), (304, 62596), (309, 62638), (315, 62683), (316, 62686), (319, 62701),

Gene: TomSawyer\_80 Start: 58037, Stop: 61357, Start Num: 9

Candidate Starts for TomSawyer\_80:

(Start: 9 @58037 has 29 MA's), (15, 58088), (16, 58109), (Start: 19 @58133 has 1 MA's), (22, 58214), (28, 58412), (39, 58568), (41, 58592), (46, 58640), (47, 58643), (51, 58697), (55, 58748), (56, 58766), (58, 58775), (61, 58811), (72, 58928), (80, 59000), (93, 59138), (99, 59207), (108, 59372), (116, 59450), (134, 59612), (148, 59735), (162, 59819), (167, 59867), (169, 59891), (182, 60095), (185, 60149), (187, 60158), (190, 60176), (191, 60182), (205, 60374), (208, 60398), (213, 60425), (229, 60533), (246, 60722), (254, 60800), (260, 60842), (263, 60860), (269, 60902), (276, 60941), (277, 60947), (281, 60974), (286, 61013), (293, 61061), (294, 61070), (303, 61142), (306, 61163), (308, 61190), (309, 61193), (312, 61208), (316, 61241), (325, 61310),

Gene: Tomas\_84 Start: 60777, Stop: 64097, Start Num: 9

Candidate Starts for Tomas\_84:

(Start: 9 @60777 has 29 MA's), (15, 60828), (16, 60849), (Start: 19 @60873 has 1 MA's), (28, 61152), (36, 61254), (39, 61308), (40, 61326), (41, 61332), (46, 61380), (51, 61437), (55, 61488), (56, 61506), (61, 61551), (70, 61659), (72, 61668), (93, 61878), (134, 62352), (148, 62475), (162, 62559), (168, 62622), (169, 62631), (182, 62835), (184, 62871), (185, 62889), (187, 62898), (190, 62916), (191, 62922), (194, 63003), (197, 63036), (205, 63114), (213, 63165), (229, 63273), (239, 63417), (240, 63420), (242, 63438), (244, 63450), (246, 63462), (254, 63540), (259, 63579), (260, 63582), (263, 63600), (269, 63642), (276, 63681), (277, 63687), (286, 63753), (293, 63801), (294, 63810), (303, 63882), (308, 63930), (309, 63933), (314, 63972), (325, 64050),

Gene: Tribute\_78 Start: 58724, Stop: 62008, Start Num: 10

Candidate Starts for Tribute\_78:

(Start: 10 @58724 has 62 MA's), (14, 58769), (16, 58799), (18, 58817), (Start: 19 @58823 has 1 MA's), (28, 59102), (36, 59204), (41, 59282), (51, 59387), (56, 59450), (57, 59456), (61, 59495), (72, 59612), (81, 59696), (93, 59822), (95, 59852), (99, 59891), (112, 60098), (135, 60278), (146, 60383), (147, 60389), (148, 60395), (162, 60479), (164, 60509), (169, 60551), (170, 60578), (172, 60611), (174, 60623), (178, 60686), (182, 60758), (185, 60812), (187, 60821), (189, 60830), (190, 60839), (191, 60845), (213, 61088), (224, 61157), (226, 61169), (235, 61274), (256, 61469), (262, 61502), (269,

61553), (277, 61598), (286, 61664), (293, 61712), (303, 61793), (304, 61802), (309, 61844), (315, 61889), (316, 61892), (319, 61907),

Gene: Trina\_102 Start: 68795, Stop: 71665, Start Num: 74

Candidate Starts for Trina\_102:

(Start: 74 @68795 has 1 MA's), (75, 68840), (84, 68930), (90, 69017), (93, 69041), (94, 69044), (100, 69119), (104, 69158), (107, 69254), (135, 69503), (136, 69518), (137, 69521), (149, 69620), (154, 69653), (168, 69761), (169, 69770), (174, 69842), (177, 69869), (183, 69986), (184, 70010), (185, 70028), (186, 70034), (190, 70055), (191, 70061), (192, 70079), (200, 70235), (213, 70301), (214, 70307), (219, 70325), (237, 70508), (247, 70616), (258, 70718), (259, 70727), (263, 70754), (264, 70763), (271, 70805), (275, 70835), (279, 70856), (280, 70865), (285, 70904), (295, 70982), (296, 70994), (297, 70997), (309, 71105), (313, 71144), (317, 71159), (319, 71171), (322, 71210), (332, 71318), (333, 71342), (334, 71363), (340, 71420), (342, 71450), (346, 71501), (348, 71516), (350, 71537), (358, 71612), (360, 71633),

Gene: TunaTartare\_59 Start: 50008, Stop: 53298, Start Num: 10

Candidate Starts for TunaTartare\_59:

(Start: 10 @50008 has 62 MA's), (12, 50023), (13, 50029), (15, 50059), (16, 50080), (18, 50098), (Start: 19 @50104 has 1 MA's), (28, 50383), (34, 50443), (41, 50563), (51, 50668), (56, 50731), (57, 50737), (61, 50776), (85, 51007), (104, 51220), (109, 51355), (130, 51520), (135, 51559), (144, 51658), (146, 51664), (147, 51670), (148, 51676), (151, 51700), (153, 51709), (159, 51742), (167, 51808), (168, 51823), (169, 51832), (173, 51898), (174, 51904), (178, 51967), (179, 52018), (182, 52039), (185, 52093), (187, 52102), (190, 52120), (191, 52126), (198, 52252), (205, 52318), (215, 52378), (216, 52381), (224, 52438), (225, 52444), (228, 52456), (229, 52465), (236, 52561), (239, 52609), (243, 52636), (246, 52654), (257, 52759), (268, 52828), (269, 52834), (286, 52945), (288, 52954), (295, 53005), (298, 53029), (309, 53125), (310, 53134), (317, 53176), (319, 53188),

Gene: Wakanda\_57 Start: 50039, Stop: 53326, Start Num: 10

Candidate Starts for Wakanda\_57:

(Start: 10 @50039 has 62 MA's), (16, 50111), (Start: 19 @50135 has 1 MA's), (23, 50231), (28, 50414), (34, 50474), (38, 50564), (41, 50594), (43, 50609), (45, 50636), (46, 50642), (51, 50699), (56, 50762), (61, 50807), (65, 50855), (87, 51059), (92, 51125), (93, 51134), (98, 51200), (106, 51335), (108, 51368), (116, 51446), (130, 51551), (135, 51590), (136, 51605), (147, 51701), (148, 51707), (153, 51740), (161, 51785), (162, 51791), (167, 51839), (169, 51863), (170, 51890), (171, 51908), (174, 51935), (178, 51998), (182, 52070), (185, 52124), (187, 52133), (190, 52151), (191, 52157), (198, 52283), (201, 52337), (205, 52349), (213, 52400), (215, 52409), (224, 52469), (240, 52643), (247, 52694), (259, 52802), (268, 52859), (269, 52865), (278, 52913), (286, 52976), (288, 52985), (304, 53114), (309, 53156), (312, 53171), (319, 53219),

Gene: Warpy\_83 Start: 59428, Stop: 62712, Start Num: 10

Candidate Starts for Warpy\_83:

(Start: 10 @59428 has 62 MA's), (14, 59473), (16, 59503), (18, 59521), (Start: 19 @59527 has 1 MA's), (21, 59593), (28, 59806), (41, 59986), (51, 60091), (56, 60154), (57, 60160), (61, 60199), (68, 60289), (72, 60316), (83, 60415), (93, 60526), (95, 60556), (96, 60559), (99, 60595), (116, 60838), (120, 60868), (135, 60982), (136, 60997), (147, 61093), (148, 61099), (162, 61183), (168, 61246), (169, 61255), (170, 61282), (174, 61327), (178, 61390), (182, 61462), (185, 61516), (187, 61525), (189, 61534), (190, 61543), (191, 61549), (201, 61729), (213, 61792), (224, 61861), (235, 61978), (245, 62068), (250, 62110), (256, 62173), (262, 62206), (269, 62257), (276, 62296), (277, 62302), (286, 62368), (293, 62416), (298, 62452), (303, 62497), (304, 62506), (309, 62548), (316, 62596), (319, 62611),

Gene: Watermoore\_80 Start: 59734, Stop: 63018, Start Num: 10

Candidate Starts for Watermoore\_80:



(Start: 10 @59734 has 62 MA's), (14, 59779), (16, 59809), (18, 59827), (Start: 19 @59833 has 1 MA's), (28, 60112), (36, 60214), (41, 60292), (51, 60397), (56, 60460), (57, 60466), (61, 60505), (72, 60622), (81, 60706), (93, 60832), (95, 60862), (99, 60901), (100, 60910), (112, 61108), (135, 61288), (146, 61393), (147, 61399), (148, 61405), (162, 61489), (164, 61519), (169, 61561), (170, 61588), (172, 61621), (174, 61633), (178, 61696), (182, 61768), (185, 61822), (187, 61831), (189, 61840), (190, 61849), (191, 61855), (213, 62098), (224, 62167), (226, 62179), (235, 62284), (256, 62479), (262, 62512), (269, 62563), (276, 62602), (277, 62608), (286, 62674), (293, 62722), (298, 62758), (303, 62803), (304, 62812), (309, 62854), (315, 62899), (316, 62902), (319, 62917),

Gene: Weasels2\_102 Start: 62486, Stop: 65329, Start Num: 73

Candidate Starts for Weasels2\_102:

(66, 62438), (71, 62474), (Start: 73 @62486 has 3 MA's), (83, 62594), (101, 62786), (115, 63011), (118, 63041), (119, 63044), (121, 63062), (132, 63146), (158, 63338), (162, 63359), (168, 63422), (169, 63431), (174, 63503), (177, 63530), (184, 63671), (185, 63689), (206, 63923), (246, 64277), (255, 64361), (263, 64424), (264, 64433), (265, 64436), (278, 64520), (291, 64625), (295, 64652), (296, 64664), (297, 64667), (300, 64697), (317, 64829), (323, 64883), (334, 65030), (341, 65096), (345, 65156), (346, 65165), (351, 65219), (352, 65222), (353, 65225), (354, 65228), (357, 65270),

Gene: Westy\_58 Start: 49852, Stop: 53142, Start Num: 10

Candidate Starts for Westy\_58:

(5, 49834), (Start: 10 @49852 has 62 MA's), (12, 49867), (13, 49873), (15, 49903), (16, 49924), (18, 49942), (Start: 19 @49948 has 1 MA's), (24, 50116), (26, 50158), (28, 50227), (34, 50287), (40, 50401), (41, 50407), (51, 50512), (56, 50575), (57, 50581), (61, 50620), (80, 50809), (86, 50866), (89, 50893), (92, 50938), (114, 51244), (119, 51280), (127, 51355), (130, 51364), (135, 51403), (146, 51508), (148, 51520), (153, 51553), (158, 51583), (159, 51586), (161, 51598), (162, 51604), (169, 51676), (173, 51742), (174, 51748), (178, 51811), (182, 51883), (185, 51937), (187, 51946), (190, 51964), (191, 51970), (197, 52084), (201, 52150), (205, 52162), (208, 52186), (215, 52222), (216, 52225), (224, 52282), (225, 52288), (228, 52300), (232, 52336), (236, 52405), (257, 52603), (263, 52636), (268, 52672), (269, 52678), (273, 52690), (286, 52789), (288, 52798), (289, 52819), (295, 52849), (301, 52906), (309, 52969), (317, 53020), (319, 53032),

Gene: WhereRU\_77 Start: 58001, Stop: 61285, Start Num: 10

Candidate Starts for WhereRU\_77:

(Start: 10 @58001 has 62 MA's), (14, 58046), (16, 58076), (18, 58094), (Start: 19 @58100 has 1 MA's), (21, 58166), (28, 58379), (29, 58385), (36, 58481), (41, 58559), (51, 58664), (56, 58727), (57, 58733), (61, 58772), (72, 58889), (83, 58988), (93, 59099), (95, 59129), (99, 59168), (116, 59411), (135, 59555), (136, 59570), (146, 59660), (147, 59666), (148, 59672), (151, 59696), (162, 59756), (167, 59804), (168, 59819), (169, 59828), (174, 59900), (178, 59963), (182, 60035), (185, 60089), (187, 60098), (189, 60107), (190, 60116), (191, 60122), (194, 60203), (201, 60302), (213, 60365), (224, 60434), (226, 60446), (243, 60632), (246, 60650), (256, 60746), (262, 60779), (269, 60830), (277, 60875), (286, 60941), (289, 60971), (293, 60989), (298, 61025), (303, 61070), (304, 61079), (307, 61100), (309, 61121), (316, 61169), (319, 61184),

Gene: Wipeout\_79 Start: 58788, Stop: 62108, Start Num: 9

Candidate Starts for Wipeout\_79:

(Start: 9 @58788 has 29 MA's), (15, 58839), (16, 58860), (Start: 19 @58884 has 1 MA's), (22, 58965), (28, 59163), (41, 59343), (46, 59391), (51, 59448), (55, 59499), (56, 59517), (58, 59526), (61, 59562), (70, 59670), (72, 59679), (93, 59889), (99, 59958), (108, 60123), (116, 60201), (134, 60363), (148, 60486), (151, 60510), (162, 60570), (168, 60633), (169, 60642), (182, 60846), (185, 60900), (187, 60909), (190, 60927), (191, 60933), (205, 61125), (208, 61149), (213, 61176), (229, 61284), (246, 61473), (254, 61551), (260, 61593), (263, 61611), (269, 61653), (276, 61692), (277, 61698), (281, 61725), (286, 61764), (293, 61812), (294, 61821), (303, 61893), (306, 61914), (308, 61941), (309, 61944), (312, 61959), (316, 61992), (325, 62061),

Gene: Wofford\_81 Start: 59478, Stop: 62798, Start Num: 9

Candidate Starts for Wofford\_81:

(4, 59448), (Start: 9 @59478 has 29 MA's), (15, 59529), (16, 59550), (Start: 19 @59574 has 1 MA's), (22, 59655), (28, 59853), (41, 60033), (46, 60081), (51, 60138), (55, 60189), (56, 60207), (58, 60216), (61, 60252), (72, 60369), (80, 60441), (93, 60579), (99, 60648), (108, 60813), (116, 60891), (134, 61053), (138, 61080), (148, 61176), (151, 61200), (162, 61260), (169, 61332), (182, 61536), (185, 61590), (187, 61599), (190, 61617), (191, 61623), (202, 61806), (205, 61815), (208, 61839), (213, 61866), (246, 62163), (253, 62238), (254, 62241), (260, 62283), (269, 62343), (276, 62382), (277, 62388), (281, 62415), (286, 62454), (293, 62502), (294, 62511), (303, 62583), (308, 62631), (309, 62634), (315, 62679), (316, 62682), (323, 62736), (325, 62751),

Gene: Yaboi\_82 Start: 58369, Stop: 61689, Start Num: 9

Candidate Starts for Yaboi\_82:

(Start: 9 @58369 has 29 MA's), (16, 58441), (Start: 19 @58465 has 1 MA's), (22, 58546), (28, 58744), (41, 58924), (46, 58972), (51, 59029), (55, 59080), (56, 59098), (58, 59107), (61, 59143), (72, 59260), (80, 59332), (91, 59455), (93, 59470), (99, 59539), (108, 59704), (116, 59782), (134, 59944), (137, 59968), (148, 60067), (162, 60151), (169, 60223), (182, 60427), (185, 60481), (187, 60490), (190, 60508), (191, 60514), (197, 60628), (205, 60706), (208, 60730), (213, 60757), (240, 61012), (242, 61030), (244, 61042), (254, 61132), (263, 61192), (269, 61234), (277, 61279), (281, 61306), (286, 61345), (293, 61393), (294, 61402), (303, 61474), (305, 61486), (306, 61495), (308, 61522), (309, 61525), (312, 61540), (316, 61573), (323, 61627), (325, 61642),