

TABLE S1 | Raw data before binning for 12 microsatellite loci genotyped in *Lutjanus guttatus* individuals from La Paz (LP), Colima (COL), Oaxaca (OAX), Chiriqui (CHI), and Port of Panama (PP). Sample name (S), numbers in the column header are locus names.

S	16	18	19	21	26	34	37	38	39	43	44	46												
LP1	242.8	285.1	266	292.6	370.6	393.5	280.8	299.6	274.5	289.4	393.6	409.7	368.4	403.6	278.6	282.8	282.6	290.1	233.7	238	301.5	331	243.4	266.5
LP2	221.3	281.4	250.9	281.3	344.2	355.5	299.6	299.6	243.6	293.3	380.7	415.8	364.6	364.6	228.2	256.9	282.6	314.5	269	276.4	292.4	329.9	253.1	279.8
LP3	255.1	281.3	262.3	309.3	393.4	409.4	316.8	329.6	180.4	285.9	378.2	395.5	353.2	387.8	215.3	215.3	275.1	297.7	261.6	268.9	259.2	328.2	266.4	270.9
LP4	262.6	296.4	262.4	273.8	366.9	385.8	312.6	329.3	209.1	274.5	361.3	376.9	360.6	376.1	244.7	259.2	282.7	301.8	246.5	250.7	280.7	280.7	253.2	262.9
LP5	237.4	273.6	237.7	300.5	332.3	378.1	316.8	316.8	263.1	263.1	368.7	371.2	399.6	399.6	264.3	264.3	275	318.8	265.2	265.2	293.3	293.3	262.1	262.1
LP6	262.3	284.9	258.3	269.8	315.6	389.7	272.9	312.3	244.3	262.9	403.5	436.3	335	335	223.7	271.3	293.8	310.1	216.6	261.4	261.9	293.3	248.5	257.6
LP7	198.1	258.6	273.5	326.5	326.9	385.8	288.2	308.1	244.3	278.1	395.4	395.4	383.9	387.8	236.7	236.7	275	301.6	261.5	283.5	281.6	305.9	243.8	248.6
LP8	273.7	300.1	246.6	273.6	315.7	359.2	303.9	308.2	239	254.5	359.3	411.7	368.3	411.8	240.6	282.7	290.1	310.2	261.6	283.6	259.2	259.2	238.3	248.5
LP9	251.1	281.2	242.1	262.1	370.5	397.4	272.9	272.9	255.5	255.5	395.6	403.5	364.5	364.5	178.4	252.5	275	290	250.3	268.9	296.8	331.8	211.8	248.6
LP10	262.3	281.2	233.3	269.7	303	359.2	308	308	239.3	255.4	393.6	397.5	398.2	398.2	260.8	274.5	293.8	310.1	242.1	261.5	302.5	310.9	238.3	262.1
LP11	288.6	292.4	265.9	269.9	366.9	405.4	292.1	308.1	239.2	274.1	391.7	391.7	395.5	416.3	215.3	232.8	293.9	310.2	261.5	272.5	301.5	397.8	248.6	271
LP12	281.1	317.1	258.3	265.9	336.5	378.1	312.5	341.8	213.3	228.7	399.4	468.2	379.8	424.5	210.8	210.8	267.4	322.9	250.4	261.5	278	291.5	243.5	248.6
LP13	234	288.8	245.5	273.6	389.6	393.5	299.5	325	247.9	263.1	372.5	378.3	360.8	360.8	198.2	236.4	267.5	297.6	233.6	242	273.5	332	243.5	248.6
LP14	317.1	317.1	0	0	344	378	292	349.3	281.8	285.3	428.1	428.1	383.6	391.5	232.3	271.2	290	366.5	254.1	287.3	284.3	307.8	248.6	267.8
LP15	288.7	299.9	269.7	284.9	317.8	394.5	288.9	317.4	268.7	296.8	380.1	391.6	379.9	379.9	244.4	264.1	314.4	314.4	265.2	272.6	299.5	421.5	248.6	271
LP16	238.4	304.3	242.1	288.7	323.9	370.7	312.3	320.7	239.2	266.7	367.4	378.2	380	383.8	249.2	260.1	267.4	318.6	237.9	265.2	330.9	330.9	253.2	253.2
LP17	296.2	300	250.7	269.7	340	397.4	288.2	303.7	251.6	251.6	391.7	407.6	368.3	383.7	190.4	190.4	267.5	293.9	229.4	265.2	354.3	404.6	248.6	253.2
LP18	238.4	238.4	246.4	269.7	307.2	385.8	299.6	299.6	243.4	296.8	371.2	387.7	387.7	387.7	231.8	244	275	286.3	246.3	272.6	277.1	428.2	267.6	267.6
LP19	281.2	300	262.1	277.3	298.9	385.8	313.4	329.3	289.4	305	391.8	403.6	376.2	391.5	202.7	210.8	282.5	297.6	265.2	276.3	288.8	297.7	248.5	253.1
LP20	285	296.3	285	300.3	351.8	378.1	273.3	292	240.4	282.1	407.6	415.8	364.6	403.8	236.8	253.1	290.1	305.9	254.1	268.9	295.1	315.8	262.6	266.4
LP21	273.7	296.2	246.4	285	378.2	397.5	292	292	239	287.4	382.6	387.7	379.9	399.7	228.6	256.1	275	290	265.1	276.2	287	294.2	253.2	257.8
LP22	288.7	296.3	233.4	269.7	378.1	389.7	284.6	316.7	266.6	309.2	376.3	444.5	403.5	403.5	231.9	240.6	282.5	314.4	268.9	272.6	288.7	350	253.2	257.7
LP23	198.1	281.2	262.1	296.4	291.4	298.9	308	332.6	234.7	275.1	401.4	428.3	391.7	391.7	236.6	260.1	286.2	293.8	261.5	272.6	282.6	359.5	238.3	248.6
LP24	273.7	308.6	258.4	300.5	382.1	401.7	277.1	316.6	259.3	263	389.8	397.5	372.1	391.8	223.4	240.6	275	305.9	229.4	261.5	303.5	303.5	248.6	275.6
LP25	288.7	317.2	265.9	273.6	340.2	393.6	272.9	333.5	277.9	277.9	391.7	411.7	357.1	357.1	290.2	290.2	282.5	293.8	242	272.5	287	306.7	253.3	275.6
LP26	254.8	321.4	242.1	262.1	314.3	378.2	273	341.9	239.2	281.8	387.8	399.4	395.6	399.6	249	252.6	286.3	297.6	294.7	294.7	287.1	348	253.3	257.8
LP27	285	313	233.4	273.5	351.8	385.8	325	341.8	241.3	292.9	348.7	348.7	364.6	364.6	244.7	264.1	290	290	242	246.2	295	348.1	262.8	275.5
LP28	285	304.3	262.1	262.1	311.4	378.2	303.9	312.4	270.6	289.4	387.7	436.3	376.3	416.3	268	271	305.9	314.5	261.5	279.9	260.1	279	211.8	262.3
LP29	238.3	269.9	262.2	266	344.2	381.9	0	0	0	0	389.9	391.6	383.8	387.7	202.1	236.6	282.6	282.6	265.1	276.2	264.6	281.6	227.8	267.8
LP30	273.6	277.4	242.1	265.9	363	389.7	299.5	316.5	255.4	270.5	387.7	403.5	395.7	395.7	228.2	228.2	278.8	301.6	268.9	302.4	309.8	320.1	253.2	262.2
COL3	258.7	308.6	250.7	254.6	355.6	414.8	308.1	320.7	226.3	289.3	378.2	383.9	372.2	399.7	244.3	259.9	282.6	290.1	257.8	265.2	290.7	319.9	211.8	257.7
COL4	269.9	308.7	266	266	311.5	378.1	213.5	304	200.3	251.7	382.6	407.6	387.7	387.7	268.4	268.4	282.6	286.3	265.2	265.2	289.6	289.6	233.1	253.2
COL5	262.5	277.4	266.1	285.1	374.4	413.5	308.2	308.2	256.4	260.1	415.7	440.3	384	384	240.6	244.9	286.4	297.7	272.6	280	328.1	328.1	238.4	266.7
COL6	254.9	269.9	258.4	266.1	344	381.9	312.4	321.1	259.3	278.2	382.6	399.5	376.2	376.2	236.4	252.7	282.6	286.3	254.1	257.9	288.9	312.8	238.4	262.2
COL7	234.1	288.7	233.5	277.4	370.6	385.8	269.7	295.8	222.8	266.6	436.4	440.4	379.8	399.6	215.3	224.1	267.5	286.4	246.2	246.2	279.9	315.8	280.7	280.7
COL8	269.9	299.9	237.9	292.6	363	366.7	272.5	341.8	251.7	285.5	384.1	395.5	412	428.6	253	293.9	286.3	297.7	250.3	257.7	292.4	360.8	233.1	238.4
COL9	233.9	242.7	269.7	277.3	332	363	284.6	345.6	255.3	274.2	390.3	417.9	387.7	403.7	228.2	252.5	290.1	331.3	254.1	254.1	286.1	304.6	253.1	253.1
COL10	281.2	284.9	258.4	269.8	355.5	374.1	287.6	296.8	255.5	271.3	387.9	403.4	368.3	403.7	260.6	274.8	275	318.8	246.2	254.1	338.8	338.8	238.3	253.2
COL11	266.2	292.5	254.5	262.2	315.6	378.1	284.5	299.7	239.9	278.7	384	418	407.9	407.9	241.1	283.1	286.3	286.3	250.3	254.2	0	0	248.5	270.7
COL12	262.4	273.7	269.8	277.4	389.7	393.5	304	308.1	251.7	255.5	389.9	420.1	395.7	408	202.5	236.2	286.4	310.3	254.1	272.6	283.5	313.8	238.3	253.2
COL13	262.4	285	237.8	250.7	363	366.8	288.4	321	266.8	274.3	374.4	378.9	357.1	357.1	256.7	256.7	310.3	310.3	250.4	268.9	326.2	326.2	257.7	266.7
COL14	284.9	299.9	293.8	305.9	303	355.5	273	317.7	256.3	265.6	380.2	417.9	394.2	394.2	275.5	303.5	293.9	305.9	246.2	257.8	291.5	340.8	248.6	266.4



TABLE S1 | (Continued)

S	16	18	19	21	26	34	37	38	39	43	44	46												
COL15	292.4	292.4	254.7	326.5	323.9	389.6	312.5	312.5	248.4	274.7	387.8	399.4	399.6	403.8	232.7	256.3	286.4	306	265.2	276.2	302.6	302.6	211.9	248.6
COL16	238.3	288.6	258.3	269.7	378.2	389.7	299.5	303.7	247.7	264.9	378.2	432.1	391.5	395.6	219.5	279	306	331.5	237.8	242	297.9	320.8	253.8	262.1
COL17	273.6	281.1	262.1	273.6	319.7	351.7	0	0	263	281.9	380.3	452.4	391.6	399.3	202.2	202.2	297.7	301.7	254	257.7	297.8	329	262.2	271.1
COL18	266.2	312.9	273.6	273.6	328.1	378.1	229.8	319.8	237.1	257.4	374.4	391.5	387.7	391.5	219.4	271.5	293.9	323.1	280	280	305.7	305.7	248.6	275.5
COL19	296.2	304.3	250.8	277.4	307.2	311.5	281.6	288.3	246.6	266.8	428.1	452.3	368.4	372.2	253.5	253.5	267.5	293.9	261.5	261.5	291.5	296.8	217.2	238.3
COL20	281.2	281.2	262.1	265.9	344.3	370.6	296.7	334.4	274.3	285.6	391.6	409.7	372.2	416.3	232.3	249	290.1	293.8	250.4	268.9	293.3	293.3	243.4	257.7
COL21	300.1	304.4	285	288.8	307.2	382	295.9	316.7	281.8	296.6	411.6	436.3	376	379.8	236.3	240.3	297.6	318.8	268.8	283.6	279	281.6	258	258
COL22	251.1	277.4	258.3	281.2	315.5	385.7	312.4	337.8	256.4	256.4	368.7	407.5	391.8	416.3	252.6	258.4	293.9	305.9	265.2	265.2	299.4	302.5	257.6	299
COL23	304.4	308.7	265.9	265.9	334.2	378.2	325.1	325.1	247.6	285.6	407.6	411.7	391.5	395.4	219.7	219.7	297.6	318.7	250.3	254.1	273.5	273.5	262.1	266.6
COL24	277.5	300	277.3	321.8	347.6	393.6	299.5	312.2	226.2	243.3	383.9	394.1	407.9	407.9	235.6	260.5	297.6	314.4	225.1	265.2	274.4	314.8	262.1	262.1
COL25	258.6	269.8	233.5	269.7	378.4	418.1	320.9	320.9	240.5	297.2	358	397.6	383.7	387.7	244.7	304.9	290.2	290.2	250.3	265.1	286	290.5	262	267.2
COL26	304.5	304.5	265.9	265.9	315.4	397.5	295.8	299.5	262.9	277.9	383.8	399.3	387.7	407.8	198.3	271.6	278.7	286.3	238	265.3	281.7	281.7	238.3	285.7
COL27	242.7	296.3	262.1	262.1	347.8	363	307.3	307.3	230.8	289.2	408.2	438.5	379.9	441	215.4	215.4	267.5	286.3	242.8	272.6	286.2	305.9	243.5	248.6
COL28	281.1	296.1	262.1	273.5	323.9	351.6	262	292	278.3	285.9	384	403.3	387.7	407.9	207.1	274.9	282.5	293.8	257.7	257.7	255.6	291.5	262	266.5
COL29	277.4	281.2	273.6	292.9	382.2	389.6	273.1	281.6	285.5	300.7	385.9	391.6	372.2	372.2	256.5	271	290.2	310.2	246.4	279	280	357.1	253.1	262.7
COL30	288.7	317.2	262.1	264.1	378.1	397.3	207.9	320.9	274.7	278.4	403.4	409.7	368.5	386.5	282.7	282.7	290	293.8	237.8	257.8	281.6	302.5	257.6	262
COL31	273.8	285	265.9	269.7	331.9	376.3	295.8	299.6	188.2	270.5	359.9	406.6	376.2	387.6	236.2	236.2	286.4	314.5	250.5	268.9	331.9	331.9	243.4	257.7
COL32	281.2	292.4	265.9	285	374.4	397.4	295.8	329.3	247.8	259.3	384.7	422	364.5	406.5	215	215	275	318.7	261.5	261.5	270.1	279	243.4	257.7
COL33	296.3	300.1	269.7	277.4	332.1	397.3	273	299.5	234.9	278.1	395.5	419.9	395.5	403.7	219.6	219.6	310.1	314.4	242.1	291	279.9	279.9	248.5	257.6
COL34	277.4	281.2	265.9	265.9	340.5	363.1	320.8	320.8	243.5	263.9	360	395.6	364.4	395.4	206.6	259.8	282.6	305.9	0	0	297.7	335	262.1	262.1
COL35	254.8	270	285	288.8	389.7	393.5	295.7	308.1	255.6	274.4	378.3	459.7	403.6	403.6	235.3	275.3	286.3	301.6	246.3	261.5	273.6	273.6	248.6	248.6
COL36	296.1	308.5	273.6	273.6	324	374.4	281.7	281.7	270.5	277.9	420	463.5	383.7	391.5	219.5	278.9	290.1	293.9	245.2	293.6	285.2	285.2	248.6	277
COL37	258.7	277.5	262.1	277.3	382	409.5	308	312.3	252.3	265.3	402.1	448.6	387.8	387.8	279	279	278.7	290	246.3	294.7	303.7	303.7	248.6	258.4
COL38	277.4	292.5	269.7	273.5	298.9	362.9	284.5	320.9	274.8	278.5	407.6	411.6	394.2	399.5	211	211	290.1	327.2	250.4	276.3	261.1	261.1	257.6	266.5
COL39	203.7	238.3	237.8	273.5	332.3	385.8	303.8	337.7	239.2	281.8	376.4	399.4	395.6	395.6	245.1	256.8	293.9	310.2	276.3	276.3	272.7	272.7	238.3	275.5
COL40	288.7	292.5	258.4	258.4	323.7	381.9	308.1	308.1	239.2	297.2	393.6	429.2	364.5	399.6	244.7	253	301.6	310.2	279.9	279.9	295.1	311.9	248.6	257.7
COL41	254.9	288.7	258.3	269.7	390	390	320.9	325	291.6	313.8	395.4	395.4	364.4	376.1	236.1	252.9	297.6	322.9	246.2	261.5	297.7	329	233.2	243.5
COL42	288.8	304.4	266	277.5	344.4	382	295.9	312.5	226.2	255.4	391.7	428.1	372	395.6	170.6	271.6	286.4	301.7	265.2	265.2	0	0	238.3	257.5
COL43	238.3	277.5	258.4	339.4	324	363.1	299.7	329.6	255.6	278	383.9	383.9	383.8	383.8	228.1	263.8	301.6	310.2	225.3	276.3	0	0	243.9	262.1
COL44	281.3	285	277.4	285.1	324	370.5	325.1	325.1	251.6	263	376.3	390.4	391.6	395.5	245.4	245.4	305.9	310.2	268.9	268.9	303.6	303.6	276.8	279.9
COL45	246.9	269.9	233.4	250.7	343.7	405.6	312.4	321	235.4	313.9	352.5	409.7	387.7	387.7	240.3	270.2	297.7	301.7	279.9	291	298.6	302.6	248.6	271.7
COL46	266	277.5	262.2	273.7	359.2	381.7	273.7	316.8	227.6	289.7	363.2	376.3	379.7	391.4	224.1	249	275.1	286.4	233.5	283.6	281.7	301.6	248.6	257.6
COL47	254.7	296.2	273.5	330.7	340.5	385.8	273.6	316.7	274.3	293.2	380.7	386.5	384	384	238.6	244.6	282.6	297.6	250.3	268.8	0	0	257.7	271
COL48	281.2	292.5	242	292.5	374.3	397.4	295.8	312.4	247.6	247.6	387.8	391.7	399.7	415	232.2	232.2	293.8	310.1	268.9	283.6	287	287	253.1	266.5
COL49	296.3	300	242.2	258.4	378.5	425.9	316.6	316.6	243.7	263.4	399.4	452.4	376.2	383.9	279	279	297.7	318.7	254.1	287.3	270.9	270.9	243.3	248.5
COL50	228.6	273.7	273.6	288.8	328.1	389.6	337.8	341.9	226.2	232.8	374.5	382.7	376	399.6	260.5	271.2	286.3	297.6	261.5	276.3	287	312.7	253.1	257.6
OAX1	273.8	288.9	266	273.7	348	363	292.1	345.7	219.9	266.9	374.8	376.8	391.6	420.3	206.8	206.8	282.7	282.7	272.7	276.4	336.1	397.5	248.5	262.1
OAX2	255.1	285.2	262.3	262.3	355.5	370.6	288.5	329.5	293.1	304.9	372.6	397.6	391.5	391.5	236.3	236.3	279	279	283.8	291.2	287.8	287.8	238.4	243.5
OAX3	285.2	285.2	258.5	258.5	344.3	405.4	308.2	316.9	267	283.8	393.6	395.5	399.4	403.7	260.4	260.4	301.8	314.6	238.1	272.8	284.1	307.5	257.7	262.1
OAX4	270.2	270.2	250.9	277.6	366.9	378.3	269.8	284.8	243.6	270.7	440.5	440.5	356.9	372.1	252.3	252.3	294	294	258	261.7	295	295	243.5	266.6
OAX5	281.3	285.1	279.4	285	327.8	363	293	304	243.3	255.5	384	428	387.6	391.4	224.1	256.4	305.9	314.5	0	0	331.1	331.1	238.3	257.7
OAX6	251.1	292.5	250.7	277.4	319.8	389.7	285.5	312.6	243.4	286.3	372.6	403.6	403.7	403.7	206.3	239.8	290.1	314.5	265.3	283.7	293.3	293.3	243.4	248.6
OAX7	229.9	277.6	250.8	288.9	315.5	327.9	262.1	295.9	247.6	296.9	406.2	459.8	407.8	420.2	249.1	249.1	293.9	293.9	236.9	257.9	311.7	311.7	243.4	253.2



TABLE S1 | (Continued)

S	16	18	19	21	26	34	37	38	39	43	44	46												
OAX9	288.9	292.6	250.8	266	381.8	393.3	281.7	281.7	226.9	267.6	352.6	405.6	395.5	399.4	215.8	253.8	293.9	301.7	272.7	272.7	327.9	327.9	253.1	261.9
OAX10	269.9	285	237.9	237.9	312	393.4	273	308.2	236.5	286.1	403.6	415.8	387.7	387.7	186.9	276.2	286.4	306	246.3	268.9	295.1	295.1	248.6	257.6
OAX11	281.2	304.4	246.5	273.6	340.7	377.9	333.7	333.7	263.6	265.6	372.6	395.6	383.8	387.7	241.5	241.5	301.7	301.7	294.6	294.6	306.6	332.7	248.5	267
OAX12	281.2	299.9	262.2	262.2	374.2	385.6	299.6	303.9	180.7	180.7	384.1	393.7	391.5	416	228.6	233.3	282.6	301.6	254.2	272.6	296.9	325.9	243.6	253.2
OAX13	296.2	296.2	250.8	254.6	315.5	348.1	295.9	316.7	259.3	274.3	391.6	436.3	395.5	403.7	249.2	260.2	286.4	339.8	222.4	265.2	285.9	295.9	243.5	248.6
OAX14	221	232.8	254.5	277.4	370.6	389.9	288.3	295.9	217.6	239.1	372.5	374.5	360.8	360.8	235.7	249.3	282.7	290.2	242	276.3	279.8	316.1	238.3	248.5
OAX15	273.7	300	250.7	269.8	359.2	359.2	280.8	321	266.6	296.8	391.6	395.6	387.7	390.3	202.2	202.2	290.1	305.9	246.3	268.9	314.7	335.9	253.2	257.7
OAX16	266.2	281.3	262.2	277.4	307.2	385.8	207.9	299.7	293.1	296.9	374.4	395.6	387.7	399.4	228.3	307.6	297.7	310.3	261.7	291.1	336.8	352.6	238.3	262.8
OAX17	251.1	296.3	269.9	273.7	315.8	385.8	306.9	306.9	255.7	259.4	383.9	403.4	383.7	387.7	249.7	275.8	282.6	310.2	229.4	258	297.7	297.7	253.3	262.2
OAX18	234.1	300.1	273.6	285	316	409.5	0	0	289.6	297.1	386.4	391.6	360.7	382.7	219.7	283	290.1	293.9	257.9	265.3	295.9	300.5	248.7	267.3
OAX19	292.5	313	273.6	273.6	315.6	348	273	312.3	231.6	259.4	403.6	403.6	391.7	391.7	260.5	260.5	293.9	293.9	265.2	265.2	274.5	317.9	253.2	262.1
OAX20	258.7	258.7	262.1	262.1	303	393.5	299.6	303.7	263.3	266.9	411.7	436.3	391.7	424.6	190.3	211.5	314.5	323	237.8	268.9	270.8	286	238.6	262.2
OAX21	277.5	308.8	242.2	266	315.5	359.3	265.7	265.7	222	250.5	348.8	348.8	383.6	383.6	215.1	236.8	275	297.6	257.8	265.3	288.8	296.8	238.3	261.9
OAX22	262.4	304.4	250.7	281.2	287.7	389.7	303.7	349.5	243.4	247.8	392.2	395.6	368.5	376.2	244.7	260.6	290.1	318.8	261.6	265.3	300.5	330	238.4	262.2
OAX23	251.1	251.1	246.5	246.5	374.2	389.7	303.9	316.7	251.7	278	376.4	378.3	372.2	383.8	211.4	236.5	310.3	310.3	268.9	272.6	274.4	290.5	227.9	243.4
OAX24	266.2	285	262.2	266	379.1	393.5	308.2	316.7	260.9	285.4	374.4	442.5	364.3	441.3	248.9	264	305.9	305.9	257.8	276.3	327.9	327.9	257.6	271
OAX25	233	288.8	273.5	277.3	385.9	393.5	299.6	320.8	276.1	293.1	407.6	411.8	387.7	387.7	236.2	249.6	297.6	305.9	246.3	268.9	286.1	286.1	257.8	308.4
OAX26	281.1	281.1	266	269.8	307.2	366.8	269.5	269.5	270.5	278	374.5	384	387.8	403.7	252.8	252.8	290.1	318.8	229.3	290.9	287.8	383.7	238.3	243.4
OAX27	269.9	273.7	254.5	265.9	378.2	409.5	288.3	333.6	234.8	255.4	0	0	379.9	416	211	211	275	301.7	257.7	257.7	293.3	293.3	233	257.7
OAX28	281.3	288.8	233.4	265.9	327.9	344.1	292.1	292.1	228.4	251.8	374.5	399.5	387.7	391.6	202.5	282.8	286.3	310.2	242.2	263.4	287.9	312.7	238.4	262.2
OAX29	234.2	292.6	258.3	277.4	311.4	401.3	325.1	325.1	230.5	272.3	382.8	442.4	357	399.4	236.9	278.5	286.4	290.1	261.6	283.7	307.7	307.7	243.4	257.7
OAX30	313	317.2	269.8	292.7	0	0	299.5	299.5	234.9	255.5	378.8	394.2	395.5	395.5	219.9	244.4	278.8	282.6	242.2	250.6	280.7	293.2	262.2	267.3
OAX31	284.9	321.5	250.8	273.7	351.5	393.4	295.9	307.3	221.7	251.6	386	402	391.7	412.1	236.5	274.9	290.2	297.7	254.2	265.2	295.9	363.4	253.1	253.1
OAX32	277.5	296.3	242.3	242.3	336.3	374.4	333.6	333.6	247.4	266.6	376.4	401.5	399.4	399.4	236.6	277.3	314.5	327.2	257.9	272.6	293.2	329.1	257.5	311
OAX33	262.5	285	265.9	265.9	382	393.5	295.8	295.8	251.7	266.7	384	444.5	394.3	424.6	232.2	240.8	286.3	290.1	250.5	250.5	294.9	294.9	272.2	272.2
OAX34	288.7	300.1	273.5	283.2	303	417.9	312.5	312.5	243.4	243.4	428.1	430.2	372.2	437.1	240.3	244.7	282.6	305.9	250.5	265.2	300.6	328	217.2	238.3
OAX35	300.1	304.5	277.4	277.4	370.3	378	288.4	288.4	247.6	249.7	380.2	428	383.8	412.1	249.1	249.1	290.1	343.7	250.4	254.1	279	305.6	257.6	271
OAX36	285	296.3	262.2	281.2	302.9	389.7	308.2	353.2	270.4	300.6	383.9	440.4	372	372	224.3	240.7	293.8	293.8	257.9	269	278.9	293.1	243.8	266.7
OAX37	254.9	262.5	258.4	258.4	328.1	348	292.1	292.1	218.7	293	384	436.3	395.4	395.4	219.3	263.8	275.1	306	246.3	254.2	282.5	296.8	253.2	253.2
OAX38	273.7	277.5	266	288.9	363	393.6	329.3	341.7	239	244.3	387.7	391.7	372.2	407.9	219.5	278.9	282.6	327	242.1	261.5	340.8	348.1	243.5	267.4
OAX39	296.3	304.4	233.5	266	368.6	397.4	273	273	261.2	271.4	368.7	391.7	387.9	416.4	245	260.3	290.1	327.2	276.3	280.1	280.8	302.8	243.5	253.2
OAX40	0	0	277.5	292.7	306	351.7	292.1	329.3	234.9	274.1	376.3	384	391.7	395.5	224.2	232	275.1	297.8	257.9	280	288.8	288.8	257.6	257.6
OAX41	238.4	296.4	258.3	262.1	363	378.2	292	299.6	274.3	304.9	385.9	399.4	379.9	403.6	241.1	245.3	310.2	314.4	276.2	276.2	279.9	356.2	257.7	262.1
OAX42	281.2	285	269.8	273.6	298.8	378.3	299.7	308.2	226.1	278	386.5	440.6	387.7	436.8	224	256.2	282.6	290.1	237.9	250.5	297.8	297.8	243.5	257.8
OAX43	0	0	237.8	242.2	323.8	378.1	254.4	291.1	255.4	294.8	368.8	368.8	368.3	420.2	256.6	289.8	318.8	339.8	257.9	261.6	256.5	353.6	243.4	257.7
OAX44	242.6	288.7	262.1	265.9	389.7	393.5	308.2	308.2	293.1	293.1	391.7	399.5	360.6	387.5	198.6	198.6	282.6	301.6	268.9	283.6	272.5	291.4	266.7	266.7
OAX45	300.1	313.1	242.1	258.3	355.3	381.9	295.7	316.5	235.7	251.6	359.9	387.8	372.2	391.8	244.5	253.1	290	314.4	254.2	273.6	352.5	412.3	271.8	279.9
OAX46	251.1	277.5	258.3	277.4	336.3	389.6	262	312.3	234.8	255.4	380.3	389.8	380	399.7	206.2	263.5	293.8	310.1	261.6	272.6	284.3	314.7	253.2	271.1
OAX47	269.9	308.8	265.9	265.9	378.2	385.9	320.9	329.3	270.5	293.1	386.5	386.5	383.7	391.5	256.8	260.5	282.5	310.1	237.9	268.9	358.1	358.1	238.3	253.2
OAX48	238.4	277.6	254.5	273.6	319.8	355.2	292.2	341.9	249.8	325.8	356.2	411.8	376	376	232.2	309.3	297.7	314.5	306.6	306.6	278.9	299.4	244	248.5
OAX49	285.6	285.6	273.6	273.6	323.8	363	292.1	316.7	239	296.8	391.7	403.5	376.1	376.1	219.3	260.2	278.9	314.5	257.9	265.2	295.9	327.8	248.5	258.1
OAX50	289.2	312.8	262.2	269.8	303	401.3	225.4	277.1	278	300.7	387.8	436.2	376	383.9	206.4	300.3	275	286.3	250.5	254.2	291.4	342.7	258.3	275.6



TABLE S1 | (Continued)

S	16	18	19	21	26	34	37	38	39	43	44	46												
CHI1	242.7	308.7	250.8	288.8	349.9	393.5	292.9	294.8	251.8	255.5	384	387.8	383.8	383.8	210.9	210.9	293.9	297.7	265.2	272.6	273.6	287.9	248.5	253.2
CHI2	273.8	285.1	265.9	273.7	370.5	389.6	333.4	333.4	262.9	309.8	375.1	411.8	375.9	399.4	186.4	186.4	301.6	310.2	250.5	294.8	287.9	348.1	238.4	266.5
CHI3	206.8	292.4	277.4	288.8	315.5	355.6	280.9	293	205.4	274.8	395.6	407.6	387.6	416.2	248.5	275.1	286.4	293.9	261.5	272.6	0	0	238.1	253.5
CHI4	266.2	277.5	250.9	273.7	302.9	366.7	303.9	308.2	253.3	278.1	411.6	448.6	403.7	432.8	215.3	215.3	267.6	267.6	261.5	294.8	287	302.5	253.3	257.8
CHI5	296.3	304.4	254.6	266.1	351.7	389.8	273	316.7	263	263	380	407.6	383.8	387.8	218.7	244.7	290.1	323	246.4	280	286.1	298.6	248.5	279.9
CHI6	304.5	308.8	242.2	281.3	363	366.7	273.3	292	284.6	284.6	398.2	401.5	436.9	436.9	223.7	228.6	267.6	282.6	269	280	299.5	322.7	253.2	266.5
CHI7	296.3	304.4	269.8	277.4	324.6	374.3	273	325.2	191.8	281.6	386.5	436.2	412.1	420.2	259.3	259.3	278.8	282.6	0	0	269	269	257.7	262.1
CHI8	247.8	251.9	242.2	254.5	299.1	307.5	306.7	306.7	0	0	448.6	460.8	353.5	379.8	187.6	206.7	191.1	267.5	0	0	313.9	341.6	238.3	248.5
CHI9	288.7	300	277.4	281.2	307	382	273.4	303.9	231.3	289.1	382.6	393.7	372.2	375.9	223.4	223.4	306	310.3	265.2	272.5	343.5	343.5	216.8	248.3
CHI10	258.7	292.6	262.3	262.3	344	351.7	299.7	307.2	239	281.6	391.7	424	391.7	391.7	206.5	252.7	301.7	305.9	254.1	261.5	278.9	305.6	238.1	271.1
CHI11	273.8	296.3	266.1	292.7	355.5	378.1	280.8	299.5	231.1	262.8	391.7	415.8	364.3	383.6	240.2	240.2	282.6	290.1	216.7	257.9	284.3	287.8	257.7	298.5
CHI12	242.7	266.2	266	285.1	359.1	397.5	292.1	299.6	251.6	281.7	389.8	395.6	376.2	379.8	227.8	232.1	286.4	286.4	242.6	265.2	275.3	316.8	217.1	238.2
CHI13	292.5	304.3	269.9	269.9	302.8	393.4	325.2	325.2	231.5	264.7	384.1	415.9	372.2	379.9	219.2	219.2	301.7	318.8	254.2	283.6	279.8	295	248.3	248.3
CHI14	281.3	296.3	250.8	269.8	362.8	374.1	299.6	312.4	262.7	288.7	372.6	383.9	376	383.7	0	0	297.6	305.9	254.2	254.2	294.1	340.8	237.9	262.1
CHI15	254.9	277.5	281.2	288.8	344.6	366.9	316.7	325.2	242.9	300.6	391.7	399.4	395.5	395.5	210.4	210.4	278.8	301.7	250.4	268.9	270	270	253.2	262.1
CHI16	273.7	300	269.8	273.6	302.9	378.1	292.2	303.8	238.8	253.6	387.8	387.8	375.8	387.6	202.4	232.1	293.9	301.6	276.2	276.2	310	310	257.7	271.1
CHI17	190.2	255	269.8	269.8	299.1	389.7	273	299.6	226	247.4	391.6	411.8	372.2	376	193.7	193.7	297.7	310.3	237.9	265.3	290.5	290.5	233.2	238.4
CHI18	288.8	308.8	262.2	296.5	366.7	381.9	299.6	299.6	234.7	258.9	387.9	399.4	395.7	395.7	260	260	286.4	286.4	257.9	257.9	287.9	287.9	248.4	261.9
CHI19	281.2	292.5	254.5	277.4	320.2	366.7	299.5	337.7	289.1	296.3	359.9	395.5	391.5	399.7	210.5	210.5	293.8	293.8	265.2	268.9	317.9	317.9	257.6	285.4
CHI20	277.4	277.4	254.5	273.6	319.6	370.7	284.6	299.6	293.1	304.9	403.5	463.4	372.2	403.8	219.7	240.6	286.4	297.7	242	280	301.5	301.5	248.6	253.2
CHI21	299.9	304.4	246.6	269.9	366.7	389.6	238.4	316.5	192.2	275.9	405.6	407.7	380	391.7	250.2	279.1	306	310.2	272.6	291.1	304.6	322	248.7	267.2
CHI22	251	262.4	262.3	273.7	327.8	363.2	329.4	337.7	285.6	285.6	376.3	387.8	360.7	383.6	210.9	248	301.7	301.7	257.8	276.3	334.1	334.1	248.6	257.6
CHI23	216.8	321.5	258.4	266	328	397.5	299.6	299.6	255.3	281.7	403.5	403.5	399.4	407.6	210.9	210.9	275.1	290.1	229.4	250.4	296	296	248.4	285.8
CHI24	258.6	285	266.1	269.9	351.8	366.9	321	324.1	270.5	293.1	360	407.7	372.1	372.1	240.9	252.8	271.3	286.4	294.7	294.7	309.7	340.9	238.3	275.6
CHI25	266.1	329.9	262.1	262.1	370.6	370.6	288.4	312.4	255	285.5	378.3	391.6	387.8	399.5	244.6	252.5	286.4	327.2	254.1	261.5	270	300.3	233.1	270.8
CHI26	300.1	308.7	265.9	281.2	327.9	344	269.5	300.5	243.3	275.9	372.6	405.7	376.1	395.5	248.7	286	290.1	301.6	287.4	287.4	301.5	327.8	262.7	262.7
CHI27	285	288.8	262.1	265.9	374.3	389.9	302.6	311.4	264.9	275.3	424	456	372.2	372.2	215.2	215.2	278.8	318.7	268.8	268.8	302.5	316.9	248.6	252.9
CHI28	273.7	308.7	0	0	323.8	366.8	299.5	299.5	217.2	251.5	378.3	391.6	374.9	403.4	206.7	275.2	282.6	310.2	261.5	261.5	312.7	312.7	217.3	238.4
CHI29	225.4	269.9	269.7	285	319.3	389.5	300.6	308.1	243.3	251.5	376.9	405.6	395.6	395.6	240	270.9	282.6	286.4	261.5	287.3	301.5	314.7	248.4	253
CHI30	242.6	284.9	265.9	277.4	359.4	397.5	255.3	303.9	266.6	270.4	378	407.6	387.5	387.5	210.3	210.3	293.8	293.8	276.3	276.3	297.7	297.7	248.6	270.9
PP1	251.2	300	242.2	281.2	374.2	378	299.6	304.9	255.3	255.3	389.8	391.7	376	379.9	248.4	267.4	286.4	318.8	220.9	291.1	255.5	288.8	238.2	281.2
PP2	242.5	296.2	0	0	302.9	397.1	299.6	304.9	222.8	285.5	380.2	407.7	378.6	383.7	228.2	279.1	297.7	306	254.1	257.8	298.6	314.8	248.6	262.2
PP3	296.2	304.4	242.2	250.7	359.3	374.7	288.3	288.3	259.8	274.2	380.2	407.5	383.7	387.6	236.3	278.7	275.1	306	265.2	276.3	279	284.2	216.9	257.5
PP4	266.1	269.9	254.6	273.6	366.8	389.7	303	312.4	278	285.6	391.6	397.6	379.9	386.4	227.5	227.5	293.9	301.7	229.4	272.6	298.6	333.1	238.3	243.4
PP5	238.3	251.1	254.5	284.9	383	401.5	302.8	320.9	238.7	266.7	403.5	407.7	383.7	399.6	201.9	222.9	290.1	314.5	254.1	276.3	292.4	310.7	243.4	257.6
PP6	238.3	251.1	242.2	277.4	374.3	385.8	280.9	288.2	247.4	266.8	376.3	436.4	383.8	387.8	170.8	227.9	286.4	327.3	265.2	280	295.1	295.1	238.4	331.1
PP7	292.5	308.6	254.5	258.4	276.9	382	295.8	316.6	251.5	281.2	387.8	387.8	395.6	399.6	232.5	268.2	293.8	305.9	250.4	272.6	293.4	441.8	217.2	267.2
PP8	234.2	273.8	266	285.1	355.4	366.8	272.6	320	251.5	270.7	417.9	440.4	383.8	399.6	210.5	251.8	286.4	310.3	272.6	280	278	285.2	253	257.5
PP9	242.7	292.5	273.6	277.5	336	401.3	312.5	337.9	247.6	302.8	368.7	418	379.9	379.9	228	253.2	275.1	286.4	279.8	279.8	271.8	287	257.7	280.1
PP10	285	288.7	250.7	269.7	344.4	421.9	329.2	341.7	238.2	253.5	378.8	411.8	372.3	412	228	275.6	275	275	246.3	261.5	287.9	287.9	238.3	253.1
PP11	270	281.2	242.2	258.4	382	385.8	298.3	315.6	251.6	285.4	0	0	383.6	408	237.1	240.9	286.4	301.7	250.5	261.5	277.1	277.1	266.5	320
PP12	262.4	269.9	250.8	254.6	363.1	386.7	313.5	329.4	247.8	266.7	397.6	424.2	376.1	391.6	260.2	271.8	275.1	286.4	268.9	268.9	304.5	304.5	233.2	248.7
PP13	254.9	277.5	273.6	273.6	359.3	374.4	288.3	333.6	274.3	293	399.5	459.8	376.1	403.7	190.3	206.7	294	306	261.5	268.9	277.1	350	248.5	261.9



TABLE S1 | (Continued)

S	16	18	19	21	26	34	37	38	39	43	44	46												
PP14	258.6	312.9	233.5	269.8	344.4	382.1	312.3	320.8	234.8	255.4	368.8	409.7	386.5	399.3	232.1	267.4	314.4	318.7	233.6	254.1	297.7	396.8	238.3	238.3
PP15	216.8	269.9	273.6	273.6	311.2	389.7	314.5	320.9	270.4	278.9	382.1	434.3	380	383.8	198.5	211	282.7	305.9	0	0	302.4	302.4	253.2	257.7
PP16	242.7	254.9	250.8	288.8	360.2	397.3	273.4	299.5	274.3	289.1	378.9	385.9	391.3	391.3	240.6	282.9	290.1	290.1	257.9	276.4	300.4	300.4	238.3	262.2
PP17	229.6	292.5	273.5	317.8	336.3	351.8	299.6	299.6	251.8	278.1	378.5	380.8	376	387.6	228.2	248.8	322.9	322.9	261.6	265.2	306.8	322.9	257.7	257.7
PP18	211.1	273.7	242.2	269.8	363	366.8	284.5	292	270.5	276.2	399.5	419.8	372.4	384	249.2	264.2	286.3	293.8	242	250.4	297.8	340.8	248.5	272.2
PP19	292.5	304.3	250.7	250.7	366.8	382	308.1	320.9	266.8	279.8	376.4	415.8	391.6	391.6	227.6	289.2	290.1	290.1	246.2	246.2	305.6	451.5	248.5	248.5
PP20	270	288.7	288.9	309.1	305.3	382	281.7	312.3	243.3	255.5	380.1	397.5	382.4	382.4	198.4	202.6	282.5	293.8	0	0	321	321	271.6	326.1
PP21	300.1	308.7	258.4	262.2	311.4	378.2	303.9	316.6	290.3	309.4	391.7	436.2	370.3	372	215.3	293.8	293.9	305.9	250.5	257.9	293.3	324.2	248.6	289.2
PP22	269.8	277.4	288.8	313.6	344.3	394.3	273	308.1	251.8	265	395.6	442.5	383.8	387.8	202.3	202.3	286.3	286.3	254.1	265.2	291.6	300.6	248.6	323.8
PP23	228.4	292.5	273.6	296.4	374.3	397.5	258.3	295.8	266.8	278.1	380.1	399.4	357.1	376.1	271	271	286.4	297.7	233.6	276.2	283.5	351.7	262	271
PP24	238.4	273.6	277.4	277.4	302.9	393.5	306.9	306.9	247.5	278.1	382.7	389.8	395.6	395.6	219.7	260.2	290.1	301.6	246.3	257.8	284.3	284.3	248.6	257.6
PP26	277.5	292.5	262.2	266	298.9	319.8	288.3	316.6	217.8	263	405.6	407.7	379.8	379.8	249.1	267.8	278.8	297.7	265.2	279.9	288.7	303.5	248.6	253.2
PP27	258.6	273.8	282.5	292.7	366.7	370.5	280	292.1	274.3	292.9	348.7	401.6	395.5	399.6	215.4	286.1	282.5	282.5	276.3	287.3	301.6	332.9	243.4	253.1
PP28	281.3	313	250.7	258.4	344.3	366.7	304	337.7	247.7	282.6	387.9	395.6	376.1	391.8	198.2	198.2	310.2	310.2	257.9	265.2	314.8	352.7	243.4	281.2
PP29	254.8	269.9	281.3	318	359.3	378.1	295.8	321.9	266.8	300.7	376.3	401.5	372.3	399.6	244.3	263.8	294	297.8	250.4	261.5	289.7	341.7	238.3	253.1
PP30	270	281.2	258.3	273.6	332.5	389.7	299.7	304	230.8	243.5	411.7	415.8	379.8	414.7	231.5	249	293.9	293.9	261.5	265.2	334.1	399.6	271.8	311.3



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