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## Lampiran 1. Kuisisioner

### KUISISIONER AWAL

(Hanya untuk pasien yang pernah berobat karena sakit TBC/ Bronkhitis/)

## LAMPIRAN 2. KUISISIONER

### KUISISIONER

#### Petunjuk Pengisian

1. Isilah titik-titik di bawah ini dan berilah tanda checklist (√) pada salah satu tanda  sesuai dengan jawaban yang menurut Anda benar
2. Bila ada yang kurang dimengerti oleh Bapak/ Ibu, boleh dipertanyakan pada peneliti.

#### A. DATA UMUM (diisi oleh peneliti)

A1	Kode	
A2	Tanggal Penelitian	
A3	No Rekam Medik	
A4	Pewawancara	
A5	Tempat Wawancara	

#### B. DATA DEMOGRAFI RESPONDEN

B1	Nama Pasien	
B1	Jenis Kelamin	<input type="checkbox"/> Laki-laki <input type="checkbox"/> Perempuan
B3	Umur	..... tahun
B4	Alamat	

B5	Telepon	
B6	Status perkawinan	<input type="checkbox"/> Belum kawin <input type="checkbox"/> Kawin <input type="checkbox"/> Janda <input type="checkbox"/> Duda
B7	Berat Badan	..... kg
B8	Tinggi Badan	..... cm

### C. RIWAYAT PENYAKIT SEBELUMNYA

C1	Sudah berapa kali Anda menderita TBC?	<input type="checkbox"/> 1 kali <input type="checkbox"/> 2 kali <input type="checkbox"/> > 2 kali
C2	Berapa lama Anda menderita TBC saat itu?	..... bulan/ tahun
C3	Gejala – gejala saat itu yang Anda rasakan	a. Gejala utama : ..... Lamanya dirasakan : ..... b. Gejala lain : <input type="checkbox"/> Berkeringat pada malam hari, lamanya: ..... <input type="checkbox"/> Demam, lamanya: ..... <input type="checkbox"/> Berat badan menuru, lamanya: ..... <input type="checkbox"/> Nyeri dada, lamanya: ..... <input type="checkbox"/> Sesak, lamanya: ..... <input type="checkbox"/> Batuk darah, lamanya: ..... <input type="checkbox"/> Mengeluarkan lendir warna hijau, Lamanya: ..... <input type="checkbox"/> Nafsu makan menurun, lamanya: .....

### D. RIWAYAT PENYAKIT SAAT INI

D1	Gejala-gejala yang Anda rasakan saat	a. Gejala utama : .....
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	ini	<p>Lamanya dirasakan : .....</p> <p>b. Gejala lain :</p> <p><input type="checkbox"/> Berkeringat pada malam hari, lamanya: .....</p> <p><input type="checkbox"/> Demam, lamanya: .....</p> <p><input type="checkbox"/> Berat badan menuru, lamanya: .....</p> <p><input type="checkbox"/> Nyeri dada, lamanya: .....</p> <p><input type="checkbox"/> Sesak, lamanya: .....</p> <p><input type="checkbox"/> Batuk darah, lamanya: .....</p> <p><input type="checkbox"/> Mengeluarkan lendir warna hijau, Lamanya: .....</p> <p><input type="checkbox"/> Nafsu makan menurun, lamanya: .....</p>
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#### E.FAKTOR-FAKTOR RESIKO

F1	Riwayat penggunaan narkoba	<p>a. Apakah Anda pernah menggunakan narkoba sebelumnya?</p> <p><input type="checkbox"/> Ya                      <input type="checkbox"/> Tidak</p> <p>b. Jika Ya, apa nama obatnya?</p> <p>.....</p> <p>c. Cara menggunakan</p> <p><input type="checkbox"/> Diminum              <input type="checkbox"/> Dihisap              <input type="checkbox"/> Disuntik</p> <p>d. Mulai menggunakan sejak tahun: .....</p> <p>e. Berapa kali menggunakan dalam seminggu:</p> <p>.....</p> <p>f. Masih menggunakan?</p> <p><input type="checkbox"/> Ya                      <input type="checkbox"/> Tidak</p> <p>g. Jika tidak, sudah berhenti sejak tahun:</p> <p>.....</p>
F2	Riwayat minum alkohol	<p>a. Apakah Anda pernah mengkonsumsi alkohol?</p> <p><input type="checkbox"/> Ya                      <input type="checkbox"/> Tidak</p>



		<p>b. Jika Ya, Nama minuman: .....</p> <p>c. Mulai minum sejak tahun: .....</p> <p>d. Berapa kali dalam seminggu: ..... kali</p> <p>e. Sekali minum ..... gelas/ botol</p> <p>f. Apakah sekarang Anda masih minum alkohol? <input type="checkbox"/> Ya            <input type="checkbox"/> Tidak</p> <p>g. Jika tidak, Sudah berhenti sejak tahun: .....</p>
F3	Riwayat merokok	<p>a. Apakah Anda pernah merokok? <input type="checkbox"/> Ya            <input type="checkbox"/> Tidak</p> <p>b. Jika Ya, mulai merokok sejak tahun: .....</p> <p>c. Jumlah rokok sehari: ..... batang</p> <p>d. Apakah saat ini Anda masih merokok? <input type="checkbox"/> Ya            <input type="checkbox"/> Tidak</p> <p>e. Jika tidak, sudah berhenti sejak tahun: .....</p>
F4	Riwayat kontak dengan penderita TBC	<p>a. Apakah sebelumnya Anda pernah ada kontak dengan penderita TB? <input type="checkbox"/> Ya            <input type="checkbox"/> Tidak            <input type="checkbox"/> Tidak tahu</p> <p>Jika ya, dengan siapa?</p> <p><input type="checkbox"/> Orang satu rumah</p> <p><input type="checkbox"/> Teman kerja</p> <p><input type="checkbox"/> Tetangga</p> <p><input type="checkbox"/> Teman</p> <p><input type="checkbox"/> Pasien rumah sakit</p> <p>b. Apakah sebelumnya Anda pernah ada kontak dengan penderita Bronkhitis? <input type="checkbox"/> Ya            <input type="checkbox"/> Tidak            <input type="checkbox"/> Tidak tahu</p> <p>Jika ya, dengan siapa?</p>

		<input type="checkbox"/> Orang satu rumah <input type="checkbox"/> Teman kerja <input type="checkbox"/> Tetangga <input type="checkbox"/> Teman <input type="checkbox"/> Pasien rumah sakit c. Apakah sebelumnya Anda pernah ada kontak dengan penderita batuk lama? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak <input type="checkbox"/> Tidak tahu Jika ya, dengan siapa? <input type="checkbox"/> Orang satu rumah <input type="checkbox"/> Teman kerja <input type="checkbox"/> Tetangga <input type="checkbox"/> Teman <input type="checkbox"/> Pasien rumah sakit
F5	Riwayat Diabetes Mellitus	Apakah Anda pernah menderita Diabetes Mellitus (penyakit gula)? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak <input type="checkbox"/> Tidak tahu
F6	Riwayat HIV	a. Apakah Anda pernah menderita HIV? <input type="checkbox"/> Ya <input type="checkbox"/> Tidak <input type="checkbox"/> Tidak tahu

**F. HASIL PEMERIKSAAN YANG SUDAH ADA (diisi oleh peneliti)**

I1	IMT :	<input type="checkbox"/> Kurang <input type="checkbox"/> Ideal <input type="checkbox"/> Lebih
I2	Hasil foto X-Ray thorax	
I3	Hasil sputum BTA di tempat ini	Sputum 1:

		Sputum 2:  Sputum 3:
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**Catatan:**

**Ingatkan pasien untuk datang memeriksakan dahaknya pada tanggal:**

.....

**Yang dibawa pada kunjungan berikutnya:**

- 1. Hasil foto: jika ada**
- 2. Contoh obat yang diminum (bungkusnya juga bisa)**

## Lampiran 2. Hasil Pemeriksaan Ekspresi Gen BTNL2

Target	Sample	Mean Cq	Mean Efficiency Corrected Cq	Normalized Expression	Relative Normalized Expression	Regulation	Compared to Regulation Threshold	P-Value	Exceeds P-Value Threshold
BTNL2	K1	22.20	22.20	24.54414	0.00552	-181.04616	Down regulated		No
BTNL2	K12	21.37	21.37	108.59773	0.02444	-40.91819	Down regulated		No
BTNL2	K13	21.45	21.45	55.52137	0.01249	-80.03445	Down regulated		No
BTNL2	K14	22.16	22.16	33.07461	0.00744	-134.35147	Down regulated		No
BTNL2	K15	21.92	21.92	142.92585	0.03216	-31.09041	Down regulated		No
BTNL2	K16	21.28	21.28	91.85761	0.02067	-48.37512	Down regulated		No
BTNL2	K17	22.56	22.56	872.25398	0.19629	-5.09441	Down regulated		No
BTNL2	K18	22.12	22.12	472.81267	0.10640	-9.39827	Down regulated		No
BTNL2	K19	21.14	21.14	63.49799	0.01429	-69.98052	Down regulated		No
BTNL2	K2	22.20	22.20	70.56268	0.01588	-62.97412	Down regulated		No
BTNL2	K21	22.12	22.12	5736.82246	1.29102	1.29102	No change		No
BTNL2	K23	20.89	20.89	187.60344	0.04222	-23.68625	Down regulated		No
BTNL2	K24	22.30	22.30	8334.60081	1.87563	1.87563	No change		No
BTNL2	K25	22.41	22.41	3699.10949	0.83245	-1.20127	No change		No
BTNL2	K27	22.30	22.30	2235.60597	0.50310	-1.98766	No change		No
BTNL2	K28	22.11	22.11	984.82452	0.22163	-4.51210	Down regulated		No
BTNL2	K29	22.05	22.05	140.40115	0.03160	-31.64947	Down regulated		No
BTNL2	K3	22.48	22.48	226.25325	0.05092	-19.64004	Down regulated		No
BTNL2	K30	21.13	21.13	20.15751	0.00454	-220.44506	Down regulated		No
BTNL2	K32	22.38	22.38	1199.42252	0.26992	-3.70480	No change		No
BTNL2	K33	22.28	22.28	761.30629	0.17133	-5.83684	Down regulated		No
BTNL2	K35	21.30	21.30	13.22877	0.00298	-335.90586	Down regulated		No
BTNL2	K36	21.46	21.46	4885.04803	1.09934	1.09934	No change		No
BTNL2	K37	21.42	21.42	4156.62996	0.93541	-1.06904	No change		No
BTNL2	K38	22.05	22.05	1438.43726	0.32371	-3.08920	No change		No
BTNL2	K39	21.92	21.92	226.36312	0.05094	-19.63051	Down regulated		No
BTNL2	K40	21.74	21.74	893.01466	0.20097	-4.97598	Down regulated		No
BTNL2	K41	21.64	21.64	549.10982	0.12357	-8.09241	Down regulated		No
BTNL2	K42	22.33	22.33	885.86662	0.19936	-5.01613	Down regulated		No
BTNL2	K43	22.31	22.31	177.12020	0.03986	-25.08817	Down regulated		No
BTNL2	K44	22.08	22.08	144.75157	0.03258	-30.69827	Down regulated		No
BTNL2	K45	22.13	22.13	1500.53215	0.33768	-2.96136	No change		No
BTNL2	K46	21.72	21.72	1196.00887	0.26915	-3.71538	No change		No
BTNL2	K47	22.05	22.05	1517.55842	0.34151	-2.92814	No change		No
BTNL2	K48	21.55	21.55	311.09162	0.07001	-14.28397	Down regulated		No
BTNL2	K49	21.80	21.80	905.99421	0.20389	-4.90469	Down regulated		No
BTNL2	K5	22.27	22.27	40.61912	0.00914	-109.39730	Down regulated		No
BTNL2	K51	21.28	21.28	26081.98686	5.86953	5.86953	Up regulated		No

BTNL2	K52	21.65	21.65	580.63802	0.13067	-7.65300	Down regulated	No
BTNL2	K54	21.20	21.20	85.93853	0.01934	-51.70699	Down regulated	No
BTNL2	K55	21.03	21.03	4742.23994	1.06720	1.06720	No change	No
BTNL2	K57	21.36	21.36	3114.87655	0.70098	-1.42658	No change	No
BTNL2	K58	21.24	21.24	614.95639	0.13839	-7.22591	Down regulated	No
BTNL2	K59	21.57	21.57	55.83792	0.01257	-79.58074	Down regulated	No
BTNL2	K6	22.32	22.32	21.01156	0.00473	-211.48467	Down regulated	No
BTNL2	K64	21.34	21.34	218.10425	0.04908	-20.37385	Down regulated	No
BTNL2	K65	21.63	21.63	8340.51374	1.87696	1.87696	No change	No
BTNL2	K67	21.39	21.39	6406.79692	1.44180	1.44180	No change	No
BTNL2	K7	21.87	21.87	38.69730	0.00871	-114.83030	Down regulated	No
BTNL2	K70	21.62	21.62	7159.19248	1.61112	1.61112	No change	No
BTNL2	K71	21.27	21.27	5770.62434	1.29863	1.29863	No change	No
BTNL2	K73	21.44	21.44	1786.17035	0.40196	-2.48779	No change	No
BTNL2	K74	22.06	22.06	11275.36218	2.53743	2.53743	No change	No
BTNL2	K76	21.65	21.65	5081.94974	1.14365	1.14365	No change	No
BTNL2	K78	21.65	21.65	4265.76350	0.95997	-1.04169	No change	No
BTNL2	K79	21.40	21.40	6616.59489	1.48901	1.48901	No change	No
BTNL2	K80	21.40	21.40	7732.35788	1.74010	1.74010	No change	No
BTNL2	K82	21.63	21.63	5569.33295	1.25333	1.25333	No change	No
BTNL2	K85	21.71	21.71	321.79069	0.07242	-13.80905	Down regulated	No
BTNL2	K89	21.46	21.46	5397.81164	1.21473	1.21473	No change	No
BTNL2	K90	21.78	21.78	1496.48436	0.33677	-2.96937	No change	No
BTNL2	K91	21.64	21.64	477.05941	0.10736	-9.31461	Down regulated	No
BTNL2	S1	21.79	21.79	148.46947	0.03341	-29.92954	Down regulated	No
BTNL2	S10	22.11	22.11	35.43356	0.00797	-125.40717	Down regulated	No
BTNL2	S11	21.80	21.80	34.37974	0.00774	-129.25119	Down regulated	No
BTNL2	S12	21.75	21.75	77.96503	0.01755	-56.99507	Down regulated	No
BTNL2	S13	21.59	21.59	14.04403	0.00316	-316.40656	Down regulated	No
BTNL2	S14	21.80	21.80	45.91223	0.01033	-96.78516	Down regulated	No
BTNL2	S15	21.74	21.74	15.73978	0.00354	-282.31800	Down regulated	No
BTNL2	S16	21.66	21.66	52.13797	0.01173	-85.22815	Down regulated	No
BTNL2	S17	22.15	22.15	91.86174	0.02067	-48.37294	Down regulated	No
BTNL2	S18	22.01	22.01	291.32312	0.06556	-15.25324	Down regulated	No
BTNL2	S19	21.78	21.78	89.15683	0.02006	-49.84052	Down regulated	No
BTNL2	S2	21.93	21.93	70.08478	0.01577	-63.40353	Down regulated	No
BTNL2	S20	21.83	21.83	91.91504	0.02068	-48.34489	Down regulated	No
BTNL2	S21	21.69	21.69	1426.33505	0.32098	-3.11541	No change	No
BTNL2	S22	21.88	21.88	164.96175	0.03712	-26.93729	Down regulated	No
BTNL2	S23	22.01	22.01	303.42398	0.06828	-14.64493	Down regulated	No
BTNL2	S24	21.95	21.95	117.11079	0.02635	-37.94375	Down regulated	No
BTNL2	S25	22.02	22.02	329.74329	0.07421	-13.47601	Down regulated	No

BTNL2	S26	22.10	22.10	7405.20579	1.66648	1.66648	No change	No
BTNL2	S27	21.94	21.94	1580.36219	0.35565	-2.81177	No change	No
BTNL2	S28	21.58	21.58	181.23223	0.04078	-24.51894	Down regulated	No
BTNL2	S29	21.94	21.94	793.48060	0.17857	-5.60017	Down regulated	No
BTNL2	S3	21.97	21.97	73.05275	0.01644	-60.82759	Down regulated	No
BTNL2	S30	21.63	21.63	378.61791	0.08520	-11.73643	Down regulated	No
BTNL2	S32	21.24	21.24	90.87933	0.02045	-48.89585	Down regulated	No
BTNL2	S34	21.21	21.21	98.55436	0.02218	-45.08804	Down regulated	No
BTNL2	S35	21.01	21.01	254.77864	0.05734	-17.44111	Down regulated	No
BTNL2	S36	21.63	21.63	281.41671	0.06333	-15.79019	Down regulated	No
BTNL2	S4	21.79	21.79	1132.27117	0.25481	-3.92452	No change	No
BTNL2	S49	21.35	21.35	146.93849	0.03307	-30.24138	Down regulated	No
BTNL2	S5	21.71	21.71	17.82197	0.00401	-249.33403	Down regulated	No
BTNL2	S50	21.45	21.45	66.63296	0.01500	-66.68806	Down regulated	No
BTNL2	S52	21.20	21.20	243.10588	0.05471	-18.27855	Down regulated	No
BTNL2	S59	21.23	21.23	88.94263	0.02002	-49.96055	Down regulated	No
BTNL2	S6	21.92	21.92	108.15543	0.02434	-41.08552	Down regulated	No
BTNL2	S7	21.87	21.87	29.27830	0.00659	-151.77186	Down regulated	No
BTNL2	S8	21.83	21.83	115876.73648	26.07709	26.07709	Up regulated	No
BTNL2	S9	21.76	21.76	91.62115	0.02062	-48.49997	Down regulated	No
BTNL2	SB22	21.19	21.19	5128.33337	1.15409	1.15409	No change	No
BTNL2	SB23	21.16	21.16	578.24938	0.13013	-7.68461	Down regulated	No
BTNL2	SB24	22.01	22.01	304.30855	0.06848	-14.60236	Down regulated	No
BTNL2	SB25	21.38	21.38	836.95208	0.18835	-5.30929	Down regulated	No
BTNL2	SB26	21.81	21.81	15.02510	0.00338	-295.74659	Down regulated	No
BTNL2	SB27	21.45	21.45	495.32596	0.11147	-8.97111	Down regulated	No
BTNL2	SB28	21.52	21.52	65.21327	0.01468	-68.13986	Down regulated	No
BTNL2	SB29	21.14	21.14	148.58640	0.03344	-29.90598	Down regulated	No
BTNL2	SB4	21.16	21.16	167.03757	0.03759	-26.60253	Down regulated	No
BTNL2	SB5	21.61	21.61	91.91033	0.02068	-48.34737	Down regulated	No
BTNL2	SB6	21.19	21.19	139.61772	0.03142	-31.82707	Down regulated	No
BTNL2	SB7	21.07	21.07	1203.06585	0.27074	-3.69358	No change	No
BTNL2	SB8	21.13	21.13	1120.40970	0.25214	-3.96607	No change	No
BTNL2	T10	22.17	22.17	4443.62258	1.00000	1.00000	No change	No
BTNL2	T109	21.70	21.70	197.32679	0.04441	-22.51910	Down regulated	No
BTNL2	T119	21.61	21.61	838.51165	0.18870	-5.29942	Down regulated	No
BTNL2	T122	21.45	21.45	1831.08017	0.41207	-2.42678	No change	No
BTNL2	T124	21.37	21.37	1191.09900	0.26805	-3.73069	No change	No
BTNL2	T125	21.36	21.36	14772.00210	3.32432	3.32432	No change	No
BTNL2	T126	21.77	21.77	30.93749	0.00696	-143.63230	Down regulated	No
BTNL2	T127	21.54	21.54	7744.82952	1.74291	1.74291	No change	No
BTNL2	T128	22.04	22.04	1539.43841	0.34644	-2.88652	No change	No

BTNL2	T129	21.24	21.24	20070.67868	4.51674	4.51674	Up regulated	No
BTNL2	T135	21.16	21.16	585.53292	0.13177	-7.58902	Down regulated	No
BTNL2	T145	21.79	21.79	122.08191	0.02747	-36.39870	Down regulated	No
BTNL2	T147	21.84	21.84	55.12596	0.01241	-80.60853	Down regulated	No
BTNL2	T148	21.49	21.49	115.11810	0.02591	-38.60055	Down regulated	No
BTNL2	T152	21.55	21.55	2511.90243	0.56528	-1.76903	No change	No
BTNL2	T156	21.65	21.65	60422.00938	13.59747	13.59747	Up regulated	No
BTNL2	T159	22.46	22.46	54.96148	0.01237	-80.84976	Down regulated	No
BTNL2	T163	21.86	21.86	151200.72454	34.02646	34.02646	Up regulated	No
BTNL2	T164	21.99	21.99	133.00146	0.02993	-33.41033	Down regulated	No
BTNL2	T168	22.07	22.07	68.79141	0.01548	-64.59560	Down regulated	No
BTNL2	T171	22.15	22.15	304.41267	0.06851	-14.59736	Down regulated	No
BTNL2	T173	22.22	22.22	73.88568	0.01663	-60.14186	Down regulated	No
BTNL2	T174	23.97	23.97	15.70861	0.00354	-282.87822	Down regulated	No
BTNL2	T175	22.07	22.07	145.99991	0.03286	-30.43579	Down regulated	No
BTNL2	T176	21.86	21.86	1029.47387	0.23167	-4.31640	Down regulated	No
BTNL2	T177	22.02	22.02	79.45290	0.01788	-55.92776	Down regulated	No
BTNL2	T178	21.52	21.52	71.28511	0.01604	-62.33592	Down regulated	No
BTNL2	T180	22.12	22.12	26440.75897	5.95027	5.95027	Up regulated	No
BTNL2	T181	21.79	21.79	2209464.63762	497.22149	497.22149	Up regulated	No
BTNL2	T184	21.83	21.83	414.55004	0.09329	-10.71915	Down regulated	No
BTNL2	T188	21.89	21.89	3081.17901	0.69339	-1.44218	No change	No
BTNL2	T189	22.35	22.35	27.11071	0.00610	-163.90651	Down regulated	No
BTNL2	T190	21.70	21.70	458.63151	0.10321	-9.68887	Down regulated	No
BTNL2	T222	21.63	21.63	1538.17754	0.34615	-2.88889	No change	No
BTNL2	T224	21.48	21.48	3005.83814	0.67644	-1.47833	No change	No
BTNL2	T52	21.78	21.78	2.51035	0.00056	-1770.12324	Down regulated	No
BTNL2	T53	22.56	22.56	1440793.46237	324.23849	324.23849	Up regulated	No
BTNL2	T54	22.01	22.01	534.74381	0.12034	-8.30982	Down regulated	No
BTNL2	T55	21.76	21.76	869.16505	0.19560	-5.11252	Down regulated	No
BTNL2	T56	21.65	21.65	173.10013	0.03895	-25.67082	Down regulated	No
BTNL2	T58	21.60	21.60	12521.22487	2.81780	2.81780	No change	No
BTNL2	T59	22.04	22.04	593.29305	0.13352	-7.48976	Down regulated	No
BTNL2	T60	23.50	23.50	21834.40571	4.91365	4.91365	Up regulated	No
BTNL2	T61	22.53	22.53	1311.83408	0.29522	-3.38734	No change	No
BTNL2	T62	21.84	21.84	4965.27066	1.11739	1.11739	No change	No
BTNL2	T64	21.69	21.69	4077.42228	0.91759	-1.08981	No change	No
BTNL2	T65	21.83	21.83	192.18459	0.04325	-23.12164	Down regulated	No
BTNL2	T66	22.38	22.38	242.30527	0.05453	-18.33894	Down regulated	No
BTNL2	T67	21.60	21.60	85.26462	0.01919	-52.11567	Down regulated	No
BTNL2	T68	21.58	21.58	191.66970	0.04313	-23.18375	Down regulated	No
BTNL2	T70	22.24	22.24				No change	No

BTNL2	T75	21.79	21.79	96.37539	0.02169	-46.10744	Down regulated	No
BTNL2	T76	21.87	21.87	2568.05785	0.57792	-1.73034	No change	No
BTNL2	T77	21.46	21.46	2230.08492	0.50186	-1.99258	No change	No
BTNL2	T81	21.27	21.27	1633.20609	0.36754	-2.72080	No change	No
BTNL2	T88	21.81	21.81	9348.81586	2.10387	2.10387	No change	No
GAPDH	K1	26.82	26.82				No change	No
GAPDH	K12	28.13	28.13				No change	No
GAPDH	K13	27.24	27.24				No change	No
GAPDH	K14	27.21	27.21				No change	No
GAPDH	K15	29.08	29.08				No change	No
GAPDH	K16	27.80	27.80				No change	No
GAPDH	K17	32.33	32.33				No change	No
GAPDH	K18	31.00	31.00				No change	No
GAPDH	K19	27.13	27.13				No change	No
GAPDH	K2	28.34	28.34				No change	No
GAPDH	K21	34.60	34.60				No change	No
GAPDH	K23	28.45	28.45				No change	No
GAPDH	K24	35.33	35.33				No change	No
GAPDH	K25	34.26	34.26				No change	No
GAPDH	K27	33.43	33.43				No change	No
GAPDH	K28	32.05	32.05				No change	No
GAPDH	K29	29.18	29.18				No change	No
GAPDH	K3	30.31	30.31				No change	No
GAPDH	K30	25.46	25.46				No change	No
GAPDH	K32	32.60	32.60				No change	No
GAPDH	K33	31.85	31.85				No change	No
GAPDH	K35	25.03	25.03				No change	No
GAPDH	K36	33.72	33.72				No change	No
GAPDH	K37	33.44	33.44				No change	No
GAPDH	K38	32.54	32.54				No change	No
GAPDH	K39	29.74	29.74				No change	No
GAPDH	K40	31.54	31.54				No change	No
GAPDH	K41	30.74	30.74				No change	No
GAPDH	K42	32.12	32.12				No change	No
GAPDH	K43	29.78	29.78				No change	No
GAPDH	K44	29.25	29.25				No change	No
GAPDH	K45	32.69	32.69				No change	No
GAPDH	K46	31.94	31.94				No change	No
GAPDH	K47	32.62	32.62				No change	No
GAPDH	K48	29.83	29.83				No change	No
GAPDH	K49	31.62	31.62				No change	No
GAPDH	K5	27.61	27.61				No change	No



GAPDH	K51	35.95	35.95	No change	No
GAPDH	K52	30.83	30.83	No change	No
GAPDH	K54	27.62	27.62	No change	No
GAPDH	K55	33.24	33.24	No change	No
GAPDH	K57	32.97	32.97	No change	No
GAPDH	K58	30.51	30.51	No change	No
GAPDH	K59	27.37	27.37	No change	No
GAPDH	K6	26.71	26.71	No change	No
GAPDH	K64	29.11	29.11	No change	No
GAPDH	K65	34.66	34.66	No change	No
GAPDH	K67	34.03	34.03	No change	No
GAPDH	K7	27.15	27.15	No change	No
GAPDH	K70	34.43	34.43	No change	No
GAPDH	K71	33.76	33.76	No change	No
GAPDH	K73	32.24	32.24	No change	No
GAPDH	K74	35.52	35.52	No change	No
GAPDH	K76	33.96	33.96	No change	No
GAPDH	K78	33.71	33.71	No change	No
GAPDH	K79	34.09	34.09	No change	No
GAPDH	K80	34.31	34.31	No change	No
GAPDH	K82	34.07	34.07	No change	No
GAPDH	K85	30.04	30.04	No change	No
GAPDH	K89	33.86	33.86	No change	No
GAPDH	K90	32.32	32.32	No change	No
GAPDH	K91	30.54	30.54	No change	No
GAPDH	S1	29.01	29.01	No change	No
GAPDH	S10	27.26	27.26	No change	No
GAPDH	S11	26.90	26.90	No change	No
GAPDH	S12	28.03	28.03	No change	No
GAPDH	S13	25.40	25.40	No change	No
GAPDH	S14	27.32	27.32	No change	No
GAPDH	S15	25.72	25.72	No change	No
GAPDH	S16	27.36	27.36	No change	No
GAPDH	S17	28.67	28.67	No change	No
GAPDH	S18	30.19	30.19	No change	No
GAPDH	S19	28.25	28.25	No change	No
GAPDH	S2	28.06	28.06	No change	No
GAPDH	S20	28.35	28.35	No change	No
GAPDH	S21	32.16	32.16	No change	No
GAPDH	S22	29.24	29.24	No change	No
GAPDH	S23	30.25	30.25	No change	No
GAPDH	S24	28.82	28.82	No change	No

GAPDH	S25	30.38	30.38	No change	No
GAPDH	S26	34.95	34.95	No change	No
GAPDH	S27	32.57	32.57	No change	No
GAPDH	S28	29.09	29.09	No change	No
GAPDH	S29	31.57	31.57	No change	No
GAPDH	S3	28.16	28.16	No change	No
GAPDH	S30	30.20	30.20	No change	No
GAPDH	S32	27.74	27.74	No change	No
GAPDH	S34	27.83	27.83	No change	No
GAPDH	S35	29.01	29.01	No change	No
GAPDH	S36	29.77	29.77	No change	No
GAPDH	S4	31.94	31.94	No change	No
GAPDH	S49	28.55	28.55	No change	No
GAPDH	S5	25.87	25.87	No change	No
GAPDH	S50	27.51	27.51	No change	No
GAPDH	S52	29.12	29.12	No change	No
GAPDH	S59	27.71	27.71	No change	No
GAPDH	S6	28.68	28.68	No change	No
GAPDH	S7	26.74	26.74	No change	No
GAPDH	S8	38.65	38.65	No change	No
GAPDH	S9	28.28	28.28	No change	No
GAPDH	SB22	33.52	33.52	No change	No
GAPDH	SB23	30.34	30.34	No change	No
GAPDH	SB24	30.26	30.26	No change	No
GAPDH	SB25	31.09	31.09	No change	No
GAPDH	SB26	25.72	25.72	No change	No
GAPDH	SB27	30.41	30.41	No change	No
GAPDH	SB28	27.55	27.55	No change	No
GAPDH	SB29	28.36	28.36	No change	No
GAPDH	SB4	28.55	28.55	No change	No
GAPDH	SB5	28.13	28.13	No change	No
GAPDH	SB6	28.32	28.32	No change	No
GAPDH	SB7	31.31	31.31	No change	No
GAPDH	SB8	31.26	31.26	No change	No
GAPDH	T10	34.29	34.29	No change	No
GAPDH	T109	29.32	29.32	No change	No
GAPDH	T119	31.32	31.32	No change	No
GAPDH	T122	32.29	32.29	No change	No
GAPDH	T124	31.59	31.59	No change	No
GAPDH	T125	35.21	35.21	No change	No
GAPDH	T126	26.72	26.72	No change	No
GAPDH	T127	34.46	34.46	No change	No

GAPDH	T128	32.63	32.63	No change	No
GAPDH	T129	35.53	35.53	No change	No
GAPDH	T135	30.35	30.35	No change	No
GAPDH	T145	28.73	28.73	No change	No
GAPDH	T147	27.63	27.63	No change	No
GAPDH	T148	28.34	28.34	No change	No
GAPDH	T152	32.84	32.84	No change	No
GAPDH	T156	37.53	37.53	No change	No
GAPDH	T159	28.24	28.24	No change	No
GAPDH	T163	39.07	39.07	No change	No
GAPDH	T164	29.05	29.05	No change	No
GAPDH	T168	28.18	28.18	No change	No
GAPDH	T170	28.42	28.42	No change	No
GAPDH	T171	30.40	30.40	No change	No
GAPDH	T173	28.43	28.43	No change	No
GAPDH	T174	27.94	27.94	No change	No
GAPDH	T175	29.26	29.26	No change	No
GAPDH	T176	31.87	31.87	No change	No
GAPDH	T177	28.33	28.33	No change	No
GAPDH	T178	27.68	27.68	No change	No
GAPDH	T180	36.81	36.81	No change	No
GAPDH	T181	42.86	42.86	No change	No
GAPDH	T184	30.53	30.53	No change	No
GAPDH	T188	33.48	33.48	No change	No
GAPDH	T189	27.11	27.11	No change	No
GAPDH	T190	30.54	30.54	No change	No
GAPDH	T222	32.22	32.22	No change	No
GAPDH	T224	33.04	33.04	No change	No
GAPDH	T52	23.11	23.11	No change	No
GAPDH	T53	43.02	43.02	No change	No
GAPDH	T54	31.08	31.08	No change	No
GAPDH	T55	31.52	31.52	No change	No
GAPDH	T56	29.08	29.08	No change	No
GAPDH	T58	35.21	35.21	No change	No
GAPDH	T59	31.25	31.25	No change	No
GAPDH	T60	37.91	37.91	No change	No
GAPDH	T61	32.89	32.89	No change	No
GAPDH	T62	34.12	34.12	No change	No
GAPDH	T64	33.68	33.68	No change	No
GAPDH	T65	29.42	29.42	No change	No
GAPDH	T66	30.30	30.30	No change	No
GAPDH	T67	28.01	28.01	No change	No

GAPDH	T68	29.16	29.16	No change	No
GAPDH	T75	28.38	28.38	No change	No
GAPDH	T76	33.20	33.20	No change	No
GAPDH	T77	32.58	32.58	No change	No
GAPDH	T81	31.94	31.94	No change	No
GAPDH	T88	35.00	35.00	No change	No

### Lampiran 3. Primer BLAST Gen BTNL2

**Primer BTNL2 Forward: 5'-GTG CCA TTT CCA GGA TGG GA-3'**

**Primer BTNL2 Reverse: 5'-CAT GTG GAT TGC CTC GGG GCT C-3'**

**Target: 160 bp**

### **Homo sapiens butyrophilin like 2 (BTNL2), mRNA**

NCBI Reference Sequence: NM\_001304561.1

[FASTA Graphics](#)

[Go to:](#)

LOCUS NM\_001304561 1513 bp mRNA linear PRI 07-SEP-2020

DEFINITION Homo sapiens butyrophilin like 2 (BTNL2), mRNA.

ACCESSION NM\_001304561

VERSION NM\_001304561.1

KEYWORDS RefSeq; RefSeq Select.

SOURCE Homo sapiens (human)

ORGANISM [Homo sapiens](#)

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
Mammalia; Eutheria; Euarchontoglires; Primates; Haplorrhini;  
Catarrhini; Hominidae; Homo.

REFERENCE 1 (bases 1 to 1513)

AUTHORS Chaperon M, Pacheco Y, Maucort-Boulch D, Iwaz J, Perard L,  
Broussolle C, Jamilloux Y, Burillon C, Kodjikian L, Calender A and  
Seve P.

TITLE BTNL2 gene polymorphism and sarcoid uveitis

JOURNAL Br J Ophthalmol 103 (12), 1690-1694 (2019)

PUBMED [30872286](#)

REMARK GeneRIF: No association was found between G16071A and the  
susceptibility to sarcoid uveitis. BTNL2 gene G16071A SNP seems to  
be a predisposing factor for sarcoidosis except in Caucasian  
postmenopausal women with sarcoid uveitis in whom the GG genotype  
prevails.

REFERENCE 2 (bases 1 to 1513)

AUTHORS Gusev FE, Reshetov DA, Mitchell AC, Andreeva TV, Dincer A,  
Grigorenko AP, Fedonin G, Halene T, Aliseychik M, Filippova E, Weng  
Z, Akbarian S and Rogaev EI.

TITLE Chromatin profiling of cortical neurons identifies individual epigenetic signatures in schizophrenia

JOURNAL Transl Psychiatry 9 (1), 256 (2019)

PUBMED [31624234](#)

REMARK GeneRIF: Chromatin profiling of cortical neurons identifies individual epigenetic signatures in schizophrenia.

Publication Status: Online-Only

REFERENCE 3 (bases 1 to 1513)

AUTHORS Moon CM, Kim SW, Ahn JB, Ma HW, Che X, Kim TI, Kim WH and Cheon JH.

TITLE Deep Resequencing of Ulcerative Colitis-Associated Genes Identifies Novel Variants in Candidate Genes in the Korean Population

JOURNAL Inflamm Bowel Dis 24 (8), 1706-1717 (2018)

PUBMED [29733354](#)

REMARK GeneRIF: This study identified 3 novel susceptibility loci and validated 6 previously reported single nucleotide variants for ulcerative colitis through deep resequencing in Koreans and revealed the functional roles of BTNL2 and C5orf55.

REFERENCE 4 (bases 1 to 1513)

AUTHORS Zimmermann A, Knecht H, Hasler R, Zissel G, Gaede KI, Hofmann S, Nebel A, Muller-Quernheim J, Schreiber S and Fischer A.

TITLE Atopobium and Fusobacterium as novel candidates for sarcoidosis-associated microbiota

JOURNAL Eur Respir J 50 (6), 1600746 (2017)

PUBMED [29242257](#)

REMARK GeneRIF: Host-genotype analysis revealed an association of the rs2076530 (BTNL2) risk allele with a decrease in bacterial burden in sarcoidosis.

Publication Status: Online-Only

REFERENCE 5 (bases 1 to 1513)

AUTHORS Arnett HA, Escobar SS, Gonzalez-Suarez E, Budelsky AL, Steffen LA, Boiani N, Zhang M, Siu G, Brewer AW and Viney JL.

TITLE BTNL2, a butyrophilin/B7-like molecule, is a negative costimulatory molecule modulated in intestinal inflammation

JOURNAL J Immunol 178 (3), 1523-1533 (2007)

PUBMED [17237401](#)

REMARK GeneRIF: Structural analysis of BTNL2 shows a molecule with an extracellular region containing two sets of two Ig domains, a transmembrane region, and a previously unreported cytoplasmic tail

REFERENCE 6 (bases 1 to 1513)

AUTHORS Traherne JA, Barcellos LF, Sawcer SJ, Compston A, Ramsay PP, Hauser SL, Oksenberg JR and Trowsdale J.

TITLE Association of the truncating splice site mutation in BTNL2 with multiple sclerosis is secondary to HLA-DRB1\*15

JOURNAL Hum Mol Genet 15 (1), 155-161 (2006)

PUBMED [16321988](#)

REMARK GeneRIF: Association of the truncating splice site mutation in BTNL2 with multiple sclerosis is secondary to HLA-DRB1\*15.  
GeneRIF: Observational study of gene-disease association. (HuGE Navigator)

REFERENCE 7 (bases 1 to 1513)

AUTHORS Orozco G, Eerligh P, Sanchez E, Zhernakova S, Roep BO, Gonzalez-Gay MA, Lopez-Nevot MA, Callejas JL, Hidalgo C, Pascual-Salcedo D, Balsa A, Gonzalez-Escribano MF, Koeleman BP and Martin J.

TITLE Analysis of a functional BTNL2 polymorphism in type 1 diabetes, rheumatoid arthritis, and systemic lupus erythematosus

JOURNAL Hum Immunol 66 (12), 1235-1241 (2005)

PUBMED [16690410](#)

REMARK GeneRIF: results show that BTNL2 rs2076530 polymorphism is associated with type 1 diabetes, rheumatoid arthritis, and systemic lupus erythematosus because of its strong linkage disequilibrium with predisposing HLA DQB1-DRB1 haplotypes in Caucasian populations  
GeneRIF: Observational study of gene-disease association. (HuGE Navigator)

REFERENCE 8 (bases 1 to 1513)

AUTHORS Rybicki BA, Walewski JL, Maliarik MJ, Kian H and Iannuzzi MC.

CONSRM ACCESS Research Group

TITLE The BTNL2 gene and sarcoidosis susceptibility in African Americans and Whites

JOURNAL Am J Hum Genet 77 (3), 491-499 (2005)

PUBMED [16080124](#)

REMARK GeneRIF: BNTL2 associates with sarcoidosis in both White Americans and African-Americans, with risk effects in Whites independent of HLA-DRB1 associations, and negative interactions between BRNL2 and HLA classII in African-Americans.  
GeneRIF: Observational study of gene-disease association. (HuGE Navigator)

REFERENCE 9 (bases 1 to 1513)

AUTHORS Valentonyte R, Hampe J, Huse K, Rosenstiel P, Albrecht M, Stenzel A, Nagy M, Gaede KI, Franke A, Haesler R, Koch A, Lengauer T, Seegert D, Reiling N, Ehlers S, Schwinger E, Platzer M, Krawczak M, Muller-Quernheim J, Schurmann M and Schreiber S.

TITLE Sarcoidosis is associated with a truncating splice site mutation in

BTNL2

JOURNAL Nat Genet 37 (4), 357-364 (2005)

PUBMED [15735647](#)

REMARK GeneRIF: Sarcoidosis is associated with a truncating splice site mutation in BTNL2

GeneRIF: Observational study of gene-disease association. (HuGE Navigator)

Erratum:[Nat Genet. 2005 Jun;37(6):652]

REFERENCE 10 (bases 1 to 1513)

AUTHORS Stammers M, Rowen L, Rhodes D, Trowsdale J and Beck S.

TITLE BTL-II: a polymorphic locus with homology to the butyrophilin gene family, located at the border of the major histocompatibility complex class II and class III regions in human and mouse

JOURNAL Immunogenetics 51 (4-5), 373-382 (2000)

PUBMED [10803852](#)

COMMENT REVIEWED [REFSEQ](#): This record has been curated by NCBI staff. The reference sequence was derived from [AY684332.1](#), [AL662796.6](#), [BC127641.1](#) and [BC119668.1](#).

This sequence is a reference standard in the [RefSeqGene](#) project.

Summary: This gene encodes a major histocompatibility complex, class II associated, type I transmembrane protein which belongs to the butyrophilin-like B7 family of immunoregulators. It is thought to be involved in immune surveillance, serving as a negative T-cell regulator by decreasing T-cell proliferation and cytokine release. The encoded protein contains an N-terminal signal peptide, two pairs of immunoglobulin-like domains, separated by a heptad peptide sequence, and a C-terminal transmembrane domain. Naturally occurring mutations in this gene are associated with sarcoidosis, rheumatoid arthritis, ulcerative colitis, inflammatory bowel disease, myositis, type 1 diabetes, systemic lupus erythematosus, acute coronary syndrome, and prostate cancer. [provided by RefSeq, May 2017].

Sequence Note: This RefSeq record was created from transcript and genomic sequence data because no single transcript was available for the full length of the gene. The exon combination of this transcript is inferred based on partial and orthologous transcript alignments, RNA-seq data, and data in PMID:17237401.

Publication Note: This RefSeq record includes a subset of the



publications that are available for this gene. Please see the Gene record to access additional publications.

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[ECO:0000350]

##Evidence-Data-END##

##RefSeq-Attributes-START##

inferred exon combination :: based on alignments, homology  
RefSeq Select criteria :: based on conservation, expression,  
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##RefSeq-Attributes-END##

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435-716	AL662796.6	78305-78586	c	
717-1081	BC127641.1	192-556		
1082-1085	AL662796.6	71409-71412	c	
1086-1367	BC119668.1	556-837		
1368-1462	AL662796.6	69333-69427	c	
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