

Supplementary Table 1. Extended case data from before Rituximab treatment. OCD characteristics as assessed by Y-BOCS affected functions as assessed by SDS and previous treatments.

	Case 1	Case 2	Case 3
Y-BOCS OBSESSIVE THOUGHTS	12p	6p	14p
AGGRESSION	-	-	Yes
CONTAMINATION	-	Yes	Yes
SEXUALITY	-	-	-
HOARDING	-	Yes	Yes
RELIGION, MORALITY	-	Yes	Yes
SYMMETRY, EXACTNESS	Yes		Yes
BODY, DISEASE	-	Yes	Yes
Y-BOCS COMPULSIONS	12p	13p	12p
CLEANING	Yes	Yes	-
CONTROLLING	Yes	Yes	-
REPEATING	Yes	-	Yes
COUNTING	Yes	-	-
ARRANGING	Yes	-	-
HOARDING	-	-	-
MENTAL OR PHYSICAL RITUALS	-	Yes	Yes
TRICHOTILLOMANIA	-	-	-
Tics	Yes ¹	Yes ²	-
Affected functions (SDS)			
WORK/SCHOOL	8/10	10/10	10/10
SOCIAL LIFE/SPARE TIME	6/10	10/10	10/10
FAMILY LIFE, CHORES	5/10	10/10	10/10
Other			
"STUCK" IN ADL ACTIVITIES	Yes	Yes	-
PREOCCUPIED WITH HEALTH	-	-	Yes
Treatments before rituximab			
CBT	Yes	Yes	Yes
ANTIDEPRESSANTS/ANXIOLYTICS	3 (P, E, S)	2 (C, Bup)	2 (S, Bus)
NEUROLEPTICS	1 (R)	2 (A, Z)	2 (A, Q)
MOOD STABILIZERS	No	1 (T)	3 (V, Lam, Lit)
ANTIBIOTICS	No	Frequent antibiotics for acute infections and prophylactic	Doxycycline
IMMUNE MODULATORY	No	IVIg (5 rounds)	No
CNS STIMULANTS	No	Yes (M, L, Am)	No

Abbreviations: Y-BOCS: Yale-Brown Obsessive Compulsive Scale, SDS, Sheehan Disability Scale (10 points= maximum disability), ADL: Activities of Daily Life, CBT: Cognitive Behavioral Therapy

¹ Knocking, touching

² Knocking, touching, oral, sexual, vocal

Antidepressant and anxiolytics: P: Paroxetine; E: Escitalopram; C: Citalopram; Bus: Bupiron; Bup: Bupropion.

Neuroleptics: A: Aripiprazole; Q: Quetiapine; R: Risperidone; Z: Ziprasidone.

Mood stabilizers: T: Topiramate; V: Valproate; Lam: Lamotrigine; Lit: Lithium.

CNS-stimulants: M: Methylphenidate, L: Lisdexamfetamine, Am: Amantadine. IVIG: intravenous immune globuline; PcV: Penicillin V

Supplementary Table 2. List of proteins measured in cerebrospinal fluid and plasma

Protein name	Coefficient of variation (CV)	Panel/Product no./Manufacturer
C-reactive protein (CRP)	3%	Vascular Injury/ K15198D/Mesoscale
TNF superfamily member 13b (TNFSF13B)	5%	U-plex/Mesoscale
Nerve growth factor (NGF)	7%	U-plex/Mesoscale
Intercellular adhesion molecule 1 (ICAM1)	7%	Vascular Injury/ K15198D/Mesoscale
Interferon gamma (IFNG)	4%	Proinflammatory/K1 5049D/Mesoscale
Interleukin 10 (IL10)	4%	Proinflammatory/K15049D/Mesoscale
Interleukin 12/ interleukin 23 p40 (IL12/IL23p40)	4%	Cytokine/K1 51A0H/Mesoscale
Interleukin 15 (IL15)	4%	Cytokine/K151A0H/Mesoscale
Interleukin 6 (IL6)	5%	Cytokine/K151 A0H/Mesoscale
C-X-C motif chemokine ligand 8 (CXCL8)	5%	Cytokine/K1 51A0H/Mesoscale
Leptin	3%	U-plex/Mesoscale
C-C motif chemokine ligand 2 (CCL2)	7%	Chemokine/K15047D/Mesoscale
C-C motif chemokine ligand 4 (CCL4)	7%	Chemokine/K1 5047D/Mesoscale
C-C motif chemokine ligand 5 (CCL5)	7%	U-plex/Mesoscale
Serum amyloid A1 (SAA1)	7%	Vascular Injury/ K15198D/Mesoscale
C-C motif chemokine ligand 17 (CCL17)	7%	Chemokine/K1 5047D/Mesoscale
Vascular cell adhesion molecule 1 (VCAM1)	6%	Vascular Injury/ K1 5198D/Mesoscale
Vascular endothelial growth factor A (VEGFA)	3%	Cytokine/K151A0H/Mesoscale
Soluble CD27 (sCD27)	5%	CD27/DuoSet Elisa DY382-05/RnD System

List of proteins with detectable values present in at least 80% of all cases in the cerebrospinal fluid (CSF) samples. Excluded proteins (less than 80% detectable values in CSF) are; Brain-derived neurotrophic factor (BDNF), interleukin 17A (IL-17A), interleukin 1 beta (IL1B), interleukin 4 (IL4), C-C motif chemokine ligand 3 (CCL3), C-X-C motif chemokine ligand 12 (CXCL12), tumor necrosis factor (TNF) and colony stimulating factor 2 (CSF2). Interferon A2 (IFNA2) was excluded due to technical issues. U-plex is a custom made assay with analytes selected by the customer. All assays were bought from Mesoscale, except CD27 that is from RnD Systems, UK.

Supplementary Table 3a. Pathways enriched via pathway over representation analysis (ORA) and gene set enrichment analysis (GSEA) and their statistical significance.

WikiPath way ID	Term Name	q-value (GSEA)	q-value (ORA)	Significantly regulated genes
WP558	Complement and coagulation cascades	1.6E-6	0.048	SERPING1/C1R/C4B/C9/C8G/CFH
WP545	Complement activation	3.3E-6	0.122	C1R/C4B/C9/C8G
WP5090	Complement system in neuronal development and plasticity	2.6E-5	0.048	SERPING1/C1R/C4B/C9/C8G/CFH
WP2328	Allograft rejection	8.9E-5		C4B/C9
WP2806	Complement system	4.4E-4		SERPING1/C9/CFH
WP4754	IL-18 signaling pathway	0.0061		B2M
WP5115	Network map of SARS-CoV-2 signaling pathway	0.025		CD163/ACTB/C1R/CFH

Supplementary Table 3b. Pathways enriched via mapping the top 20 differentially expressed proteins onto pathways using multiple bioinformatics solutions: Qiagen IPA, G-profiler, String database and Oracle healthcare data model. All pathway solutions found that the most differentially expressed biological process is the complement pathway.

ID Source	Term ID	Term name	P (adj)
GO:MF	GO:0001848	Complement binding	5.0E-7
GO:MF	GO:0097001	Ceramide binding	2.4E-3
GO:MF	GO:0001846	Opsonin binding	3.3E-3
GO:BP	GO:0006956	Complement activation	2.4E-7
GO:BP	GO:0045807	Positive regulation of endocytosis	1.9E-2
GO:CC	GO:0005576	Extracellular region	1.9E-15
GO:CC	GO:0044217	Other organism part	1.2E-6
GO:CC	GO:0045202	Synapse	1.5E-3
GO:CC	GO:0030424	Axon	4.1E-3
GO:CC	GO:0005579	Membrane attack complex	1.5E-2
GO:CC	GO:0005793	Endoplasmic reticulum-Golgi intermediate compartment	2.4E-2

GO: Gene Ontology; MF: Molecular function; BP: biological processes; CC: cellular components for these proteins as derived from the G profiler database.