Supplemental Table 1. Dietary sialyllactose does not influence absolute brain volumes[1]

Region of Interest, (mm^3)	CON	LOW	MOD	HIGH	Pooled SEM	*p*-Value
Whole Brain	62785	61410	62287	60610	1693	0.76
Grey Matter	35428	34674	35886	34518	1146	0.76
White Matter	16684	16308	16441	16294	492	0.92
Cerebrospinal Fluid	5836	6659	6668	7111	668	0.39
Caudate	467	474	484	464	17.0	0.63
Cerebellum	5941	5796	6035	5903	187	0.75
Cerebral Aqueduct	43.1	46.4	44.8	44.8	1.60	0.38
Corpus Callosum	385	376	371	372	10.0	0.66
Fourth Ventricle	47.7	52.4	50.2	51.1	2.50	0.37
Hypothalamus	245	249	246	243	9.30	0.92
Internal Capsule	1513	1488	1487	1480	40.2	0.90
Lateral Ventricle	480	450	522	491	26.7	0.23
Left Cortex	16315	16394	16676	16224	445	0.88
Left Hippocampus	479	461	473	455	16.2	0.57
Medulla	1765	1724	1777	1788	53.7	0.79
Midbrain	1854	1826	1816	1814	50.2	0.84
Olfactory Bulb	2372	2357	2308	2287	66.4	0.75
Pons	1109	1074	1071	1077	28.3	0.40
Putamen-Globus Pallidus	405	387	400	389	11.5	0.44
Right Cortex	17031	16628	17257	16762	448.3	0.73
Right Hippocampus	489	474	481	466	15.7	0.62
Thalamus	1602	1573	1591	1563	45.0	0.84
Third Ventricle	48.2	49.2	45.7	49.5	2.6 0	0.55

[1]All data presented in this table represent the least-square means and pooled standard error of the means, significance was set determined at $p = 0.05$, with trends accepted at $0.05 < p < 0.10$. Number of pigs per dietary treatment was as follows: CON ($n = 10$), LOW ($n = 9$), MOD ($n = 9$), HIGH ($n = 8$).

Supplemental Table 2. Dietary sialyllactose does not influence relative brain volumes[1]

Region of Interest, (% total brain volume)	**CON**	**LOW**	**MOD**	**HIGH**	**Pooled-SEM**	***p*-Value**
Grey Matter	56.39	56.51	57.59	56.88	0.811	0.68
White Matter	26.58	26.59	26.34	26.83	0.569	0.94
Cerebrospinal Fluid	9.45	10.86	10.83	11.84	1.168	0.30
Caudate	0.75	0.78	0.78	0.77	0.020	0.19
Cerebellum	9.48	9.49	9.7	9.78	0.186	0.27
Cerebral Aqueduct	0.07	0.08	0.07	0.07	0.002	0.12
Corpus Callosum	0.61	0.61	0.60	0.61	0.010	0.46
Fourth Ventricle	0.08	0.09	0.08	0.08	0.004	0.13
Hypothalamus	0.39	0.41	0.40	0.40	0.010	0.30
Internal Capsule	2.42	2.44	2.4	2.45	0.041	0.76
Lateral Ventricle	0.77	0.73	0.84	0.81	0.042	0.22
Left Cortex	26.00	26.69	26.76	26.72	0.243	0.06
Left Hippocampus	0.76	0.75	0.76	0.75	0.012	0.75
Medulla	2.81	2.81	2.86	2.96	0.053	0.19
Midbrain	2.96	3.00	2.93	3.02	0.050	0.61
Olfactory Bulb	3.82	3.88	3.74	3.84	0.105	0.55
Pons	1.78	1.77	1.74	1.80	0.030	0.45
Putamen-Globus Pallidus	0.65	0.63	0.64	0.64	0.010	0.79
Right Cortex	27.14	27.04	27.67	27.58	0.275	0.24
Right Hippocampus	0.78	0.77	0.78	0.77	0.013	0.96
Thalamus	2.56	2.58	2.57	2.60	0.032	0.66
Third Ventricle	0.08	0.08	0.07	0.08	0.004	0.31

[1]All data presented in this table represent the least-square means and pooled standard error of the means, significance was set at $p = 0.05$, with trends accepted at $0.05 < p < 0.10$. Number of pigs per dietary treatment was as follows: CON ($n = 10$), LOW ($n = 9$), MOD ($n = 9$), HIGH ($n = 8$).

Supplemental Table 3. Dietary SL does not affect single-voxel spectroscopy measures[1]

Metabolite, ppm	CON	LOW	MOD	HIGH	Pooled SEM	*p*-Value
Phospho-creatine	2.283	2.596	2.051	2.122	0.285	0.38
Glutamate	2.725	2.583	2.203	2.350	0.166	0.07
Glutatione	0.965	1.061	0.969	1.136	0.070	0.19
Myo-inositol	5.220	5.315	5.325	5.205	0.305	0.98
Scyllo-inositol	0.309	0.301	0.283	0.307	0.022	0.77
N-acetylaspartate	4.242	4.462	4.126	4.546	0.226	0.31

[1]All data presented in this table represent the least-square means and pooled standard error of the means, significance was set at $p = 0.05$, with trends accepted at $0.05 < p < 0.10$. Number of pigs per dietary treatment are as follows: CON ($n = 10$), LOW ($n = 9$), MOD ($n = 7$), HIGH ($n = 7$).

Supplemental Figure 1. LOW and MOD pigs exhibit differences in tract-based spatial statistics

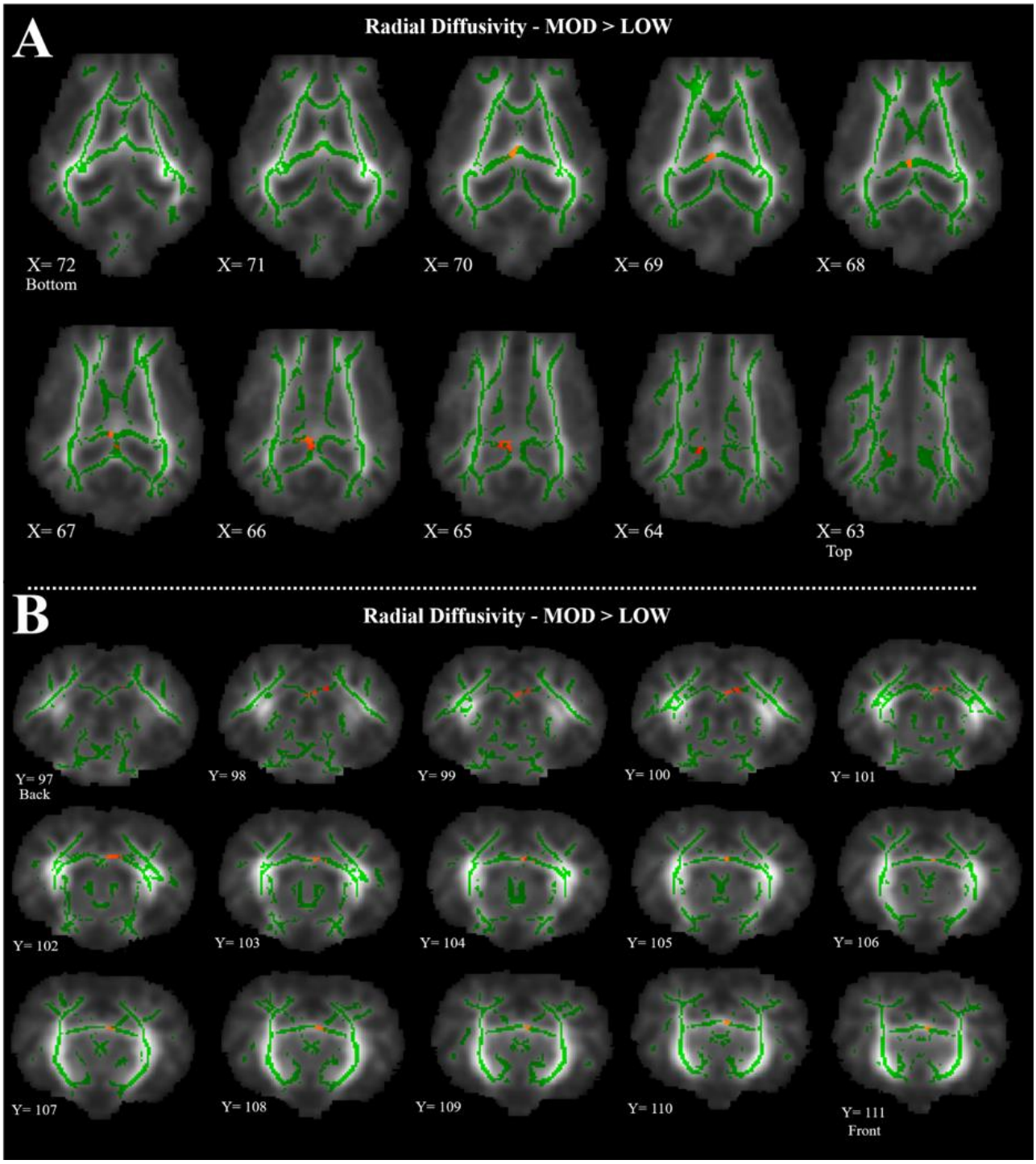

Figure 3. Tract-based spatial statistics (TBSS) illustrating differences in radial diffusivity (RD) between LOW and MOD dietary sialyllactose (SL) pigs. Pigs provided the MOD dietary SL treatment exhibited higher ($p < 0.05$) rates of radial diffusivity in the left hemisphere corpus callosum, when compared with LOW dietary SL pigs. The images generated from TBSS are and average of all LOW and MOD dietary SL pigs, green lines indicate regions in which all pigs exhibited white matter voxels. (**A**) Axial slices, with varying X-coordinates and static Y = 120 and Z = 76 coordinates, determined using University of Illinois Pig Brain Atlas [14]. (**B**) Coronal slices, with varying Y-coordinates and static X = 73 and Z = 87 coordinates, determined using the University of Illinois Pig Brain Atlas. Dark red and light red colors indicate degree of statistical differences from $p = 0.05$ to $p < 0.01$, respectively.

Supplemental Figure 2. LOW and MOD pigs exhibit differences in grey and white matter concentrations

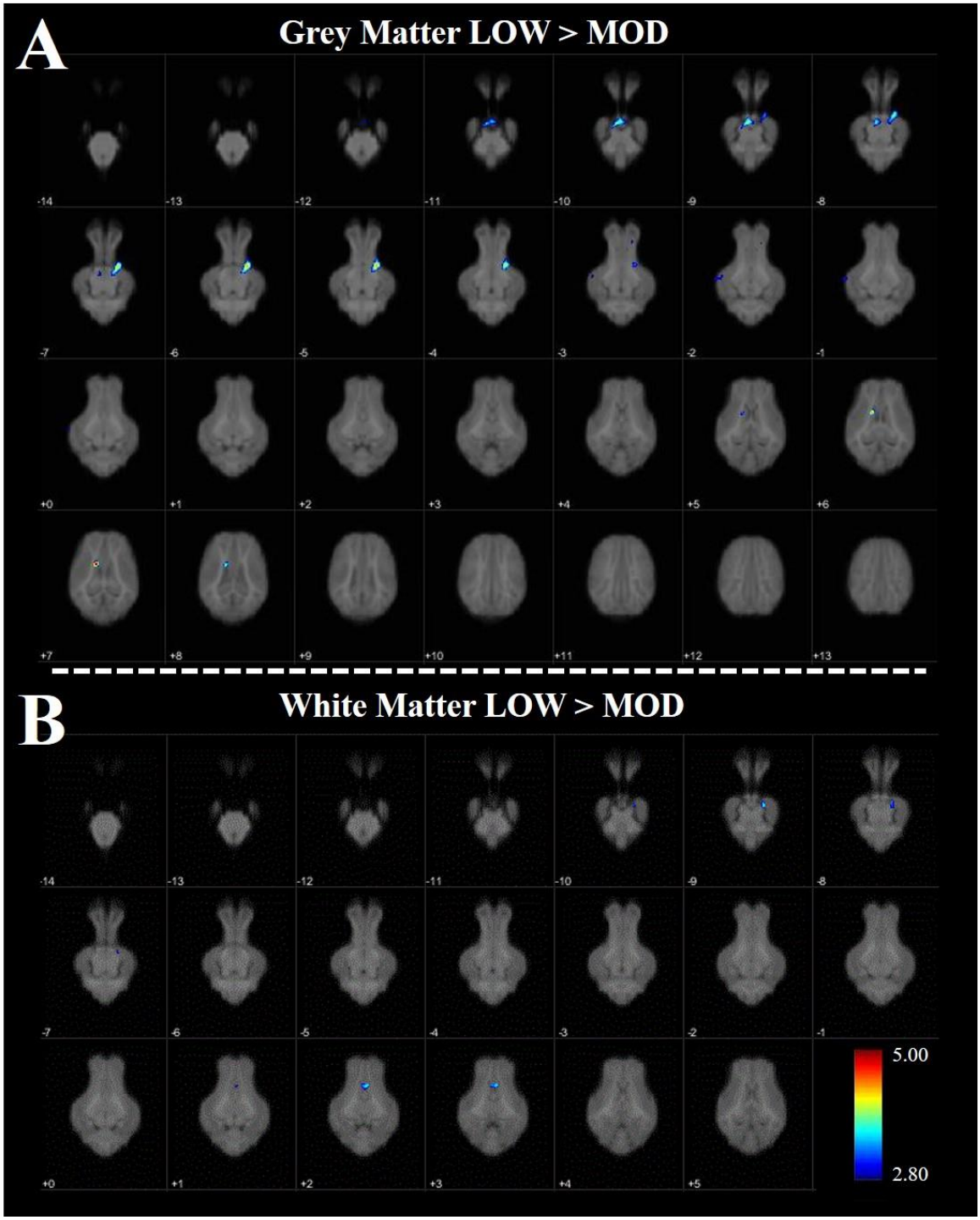

Figure 4. Voxel-based morphometry (VBM) heat maps illustrating grey matter tissue concentration differences between LOW and MOD dietary sialyllactose (SL) pigs. The colored bar indicates pseudo-*t* statistics, used to determine the *p*-uncorrected statistics provided in Table 1. **(A)** Shown above are areas in which LOW dietary SL pigs exhibited greater ($p < 0.01$) concentrations of grey matter when compared with MOD dietary SL pigs. **(B)** Shown above are areas in which LOW dietary SL pigs exhibited greater ($p < 0.01$) concentrations of white matter when compared with MOD dietary SL pigs.