

Potential associations among alteration of salivary miRNAs, saliva microbiome structure and cognitive impairments in autistic children

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Species	<i>Actinobacillus parahaemolyticus</i>				
Model results	B	Lower 95% CL	Upper 95% CL	p-value	SMD effect size
let-7b-5p	1.050	-0.673	2.774	0.232	1.387
miR-451a	-0.851	-1.866	0.165	0.101	-0.428
miR-29a-3p	-0.244	-0.824	0.335	0.409	-0.162
miR-16-5p	-0.16	-0.856	0.535	0.651	-0.110
miR-141-3p	0.059	0.028	0.09	0.000	0.045
VIQ	-0.02	-0.109	0.069	0.659	-0.015
PIQ	-0.09	-0.194	0.013	0.088	-0.064
TIQ	0.119	-0.063	0.301	0.200	0.094
ADI-A	0.278	-0.015	0.571	0.063	0.239
ADI-B	-0.049	-0.446	0.349	0.81	-0.036
ADI-C	-0.473	-0.706	-0.24	0.000	-0.281
ADI-D	0.498	0.12	0.877	0.010	0.482
ADOS-A	0.086	-0.297	0.469	0.66	0.067
ADOS-B	-0.023	-0.298	0.253	0.870	-0.017
ADOS-C	-0.602	-1.222	0.017	0.057	-0.338
ADOS-D	0.577	-0.093	1.247	0.091	0.583
Ammonium	-0.145	-0.216	-0.074	0.000	-0.101
Lactate	0.142	0.035	0.249	0.009	0.114
Ceruloplasmin	-0.121	-0.224	-0.019	0.021	-0.085
Prolactin	0.000	-0.005	0.005	0.904	0.000
TSH	0.262	-0.388	0.912	0.430	0.224

Species	<i>Filifactor spp</i>				
Model results	B	Lower 95% CL	Upper 95% CL	p-value	SMD effect size
let-7b-5p	-0.886	0.7233	-2.303	0.221	-0.429
miR-451a	-0.512	0.5175	-1.527	0.322	-0.293
miR-29a-3p	0.455	0.2417	-0.019	0.06	0.421
miR-16-5p	0.227	0.3344	-0.428	0.497	0.186
miR-141-3p	-0.061	0.0157	-0.092	0.000	-0.043
VIQ	-0.064	0.0472	-0.156	0.177	-0.045
PIQ	-0.098	0.0482	-0.193	0.042	-0.068
TIQ	0.123	0.082	-0.038	0.133	0.096
ADI-A	0.236	0.1223	-0.003	0.053	0.194
ADI-B	-0.072	0.2043	-0.473	0.723	-0.051
ADI-C	0.101	0.122	-0.139	0.410	0.078
ADI-D	-0.295	0.2066	-0.700	0.153	-0.187
ADOS-A	-0.605	0.2051	-1.007	0.003	-0.332
ADOS-B	-0.263	0.1434	-0.544	0.067	-0.169
ADOS-C	0.390	0.228	-0.057	0.087	0.349
ADOS-D	-0.215	0.219	-0.645	0.326	-0.141

Ammonium	0.002	0.037	-0.07	0.95	0.001
Lactate	-0.041	0.0559	-0.150	0.467	-0.029
Ceruloplasmin	0.068	0.0708	-0.071	0.336	0.051
Prolactin	0.003	0.0027	-0.002	0.296	0.002
TSH	-0.326	0.4127	-1.135	0.429	-0.203

Species	<i>Moryella spp</i>				
Model results	B	Lower 95% CL	Upper 95% CL	p-value	SMD effect size
let-7b-5p	-0.079	-0.875	0.717	0.846	-0.090
miR-451a	-0.450	-0.952	0.052	0.079	-0.439
miR-29a-3p	0.045	-0.22	0.311	0.739	0.056
miR-16-5p	0.064	-0.257	0.384	0.697	0.08
miR-141-3p	-0.051	-0.069	-0.033	0.000	-0.06
VIQ	-0.034	-0.079	0.011	0.141	-0.041
PIQ	-0.031	-0.077	0.015	0.185	-0.037
TIQ	0.055	-0.02	0.13	0.148	0.069
ADI-A	-0.128	-0.329	0.074	0.215	-0.146
ADI-B	-0.047	-0.293	0.199	0.71	-0.056
ADI-C	-0.051	-0.177	0.075	0.429	-0.06
ADI-D	-0.130	-0.367	0.106	0.281	0.148
ADOS-A	0.044	-0.128	0.216	0.616	0.055
ADOS-B	-0.158	-0.331	0.014	0.072	-0.177
ADOS-C	0.152	-0.158	0.462	0.335	0.199
ADOS-D	-0.098	-0.372	0.176	0.482	-0.113
Ammonium	0.013	-0.024	0.049	0.496	0.016
Lactate	0.020	-0.036	0.075	0.492	0.024
Ceruloplasmin	0.106	0.035	0.178	0.003	0.136
Prolactin	0.003	0.000	0.006	0.022	0.004
TSH	0.003	-0.391	0.397	0.988	0.004

Species	<i>Pasteurellaceae</i>				
Model results	B	Lower 95% CL	Upper 95% CL	p-value	SMD effect size
let-7b-5p	0.734	-0.599	2.066	0.281	0.939
miR-451a	-0.023	-0.686	0.639	0.945	-0.02
miR-29a-3p	0.159	-0.228	0.547	0.421	0.149
miR-16-5p	-0.272	-0.844	0.300	0.351	-0.206
miR-141-3p	0.021	-0.009	0.052	0.175	0.018
VIQ	0.020	-0.060	0.100	0.617	0.018
PIQ	0.082	-0.005	0.170	0.064	0.074
TIQ	-0.082	-0.233	0.068	0.285	-0.068
ADI-A	-0.117	-0.421	0.188	0.454	-0.096
ADI-B	-0.197	-0.584	0.191	0.32	-0.155
ADI-C	-0.134	-0.337	0.068	0.194	-0.109

ADI-D	0.406	0.008	0.804	0.046	0.434
ADOS-A	-0.258	-0.552	0.037	0.087	-0.197
ADOS-B	0.199	-0.049	0.448	0.116	0.191
ADOS-C	0.055	-0.406	0.517	0.814	0.049
ADOS-D	0.400	-0.099	0.899	0.116	0.426
Ammonium	-0.029	-0.089	0.030	0.334	-0.025
Lactate	0.082	-0.002	0.167	0.057	0.074
Ceruloplasmin	-0.100	-0.184	-0.017	0.019	-0.082
Prolactin	0.000	-0.005	0.004	0.866	0.000
TSH	-0.294	-0.884	0.296	0.329	-0.221

Species	<i>Ralstonia spp</i>				
Model results	B	Lower 95% CL	Upper 95% CL	p-value	SMD effect size
let-7b-5p	-1.763	-4.475	0.950	0.203	-0.284
miR-451a	-2.747	-6.132	0.637	0.112	-0.321
miR-29a-3p	0.419	-0.130	0.967	0.135	0.178
miR-16-5p	1174	-0.067	2.416	0.064	0.766
miR-141-3p	-0.049	-0.102	0.003	0.063	-0.016
VIQ	0.233	0.085	0.380	0.002	0.090
PIQ	0.151	0.014	0.288	0.031	0.056
TIQ	-0.350	-0.592	-0.107	0.005	-0.101
ADI-A	0.102	-0.424	0.627	0.704	0.037
ADI-B	0.107	-0.592	0.805	0.765	0.039
ADI-C	-0.024	-0.368	0.321	0.893	-0.008
ADI-D	-0.027	-0.748	0.694	0.942	-0.009
ADOS-A	-0.372	-1.045	0.301	0.278	-0.106
ADOS-B	0.120	-0.383	0.622	0.64	0.044
ADOS-C	0.095	-0.767	0.958	0.828	0.034
ADOS-D	0.38	-0.446	1.206	0.368	0.158
Ammonium	0.077	-0.028	0.183	0.152	0.027
Lactate	-0.036	-0.275	0.203	0.767	-0.012
Ceruloplasmin	0.119	-0.055	0.292	0.180	0.043
Prolactin	-0.009	-0.019	0.001	0.066	-0.003
TSH	-0.679	-1.985	0.627	0.308	-0.169

Species	<i>Tannerella spp</i>				
Model results	B	Lower 95% CL	Upper 95% CL	p-value	SMD effect size
let-7b-5p	-1.130	-1.868	-0.405	0.002	-0.875
miR-451a	-0.008	-0.603	0.588	0.980	-0.010
miR-29a-3p	-0.095	-0.360	0.170	0.482	-0.117
miR-16-5p	0.429	0.148	0.709	0.003	0.690
miR-141-3p	-0.035	-0.052	-0.018	0.000	-0.044
VIQ	-0.048	-0.093	-0.002	0.040	-0.060

PIQ	-0.059	-0.103	-0.015	0.008	-0.074
TIQ	0.089	0.011	0.167	0.025	0.12
ADI-A	0.069	-0.073	0.212	0.339	0.092
ADI-B	0.014	-0.205	0.232	0.903	0.018
ADI-C	0.146	0.016	0.275	0.028	0.203
ADI-D	-0.162	-0.379	0.056	0.145	-0.193
ADOS-A	0.181	0.005	0.357	0.044	0.256
ADOS-B	-0.195	-0.342	-0.049	0.009	-0.228
ADOS-C	0.146	-0.138	0.430	0.313	0.203
ADOS-D	0.017	-0.217	0.251	0.888	0.022
Ammonium	0.024	-0.011	0.059	0.183	0.031
Lactate	-0.001	-0.055	0.052	0.957	-0.001
Ceruloplasmin	0.024	-0.039	0.087	0.447	0.031
Prolactin	3.000	-0.003	0.003	0.955	-0.104
TSH	-0.073	-0.461	0.315	0.711	-0.091

Species	<i>Weeksellaceae</i>				
Model results	B	Lower 95% CL	Upper 95% CL	p-value	SMD effect size
let-7b-5p	0.123	-0.529	0.774	0.712	0.190
miR-451a	-0.580	-0.941	-0.219	0.002	-0.638
miR-29a-3p	0.06	-0.167	0.286	0.606	0.09
miR-16-5p	0.046	-0.218	0.309	0.734	0.068
miR-141-3p	0.026	0.011	0.040	0.001	0.038
VIQ	-0.061	-0.099	-0.022	0.002	-0.086
PIQ	-0.038	-0.077	0.000	0.049	-0.054
TIQ	0.086	0.02	0.153	0.0110	0.13
ADI-A	0.071	-0.053	0.195	0.263	0.107
ADI-B	-0.183	-0.374	0.009	0.062	-0.242
ADI-C	0.050	-0.050	0.149	0.326	0.074
ADI-D	-0.070	-0.274	0.134	0.501	-0.098
ADOS-A	-0.008	-0.163	0.148	0.924	-0.012
ADOS-B	0.016	-0.115	0.146	0.813	0.023
ADOS-C	-0.196	-0.394	0.002	0.052	-0.051
ADOS-D	-0.036	-0.268	0.196	0.762	-0.051
Ammonium	-0.028	-0.058	0.001	0.061	-0.04
Lactate	0.004	-0.041	0.049	0.862	0.006
Ceruloplasmin	-0.003	-0.050	0.045	0.918	-0.004
Prolactin	0.001	-0.002	0.003	0.557	0.001
TSH	0.063	-0.261	0.387	0.702	0.094

Supplementary Table S2. Parameter estimates from the negative binomial regression model

predicting abundances of microbiome species: regression coefficient (B); lower and upper limits of

the 95% Wald confidence interval; p-values calculated by Wald Chi-Square test; Standardized mean difference (SMD) effect size. Statistically significant p-values are indicated in bold.