Supplementary Table S1. Summary of major candidate biomarkers for autism spectrum disorder.

Biomarker/ biomarker panel	Biological samples	Sample population	Demographic characteristics	Sample size	Analytical platform	Performance metrics: AUC (95%CI), sensitivity, specificity	Proposed clinical application	Evidence types	Model validation strategy	References
Maternal diabetes	NA	Mother-infant pairs	Offspring of women with type 1 diabetes: type 2 diabetes: unexposed	29,094: 29,745: 3,186,305	Cox proportional hazard model	NR	Risk prediction	Cohort study	NA	[1]
Cortisol, estradiol and 17-hydroxyprogesterone	Serum	Mother in the first trimester of gestation, offspring	Offspring ASD with intellectual disability (ID): ASD without ID: control	118: 249:477	Restricted cubic spline logistic regression models	NR	Risk prediction	Case-control study	NA	[2]
Combined expression of *RORA*, *SOD2*, *GPER* and *PGR*	Umbilical cord blood mononuclear cell	Children with ASD	ASD: control Male: 36 26.3 ± 1.6 months	41: 41	NA	AUC=0.87(standard deviation 3.9%) sensitivity=1.000 specificity=0.854	Risk prediction	Longitudinal follow-up study	NA	[3]

20 significant ncRNAs	Peripheral blood	Children with ASD	ASD (male: 80, 8.1 years) Control (male:48, 8 years)	104: 82	LASSO penalized generalized linear model	Training set: AUC=0.96 validation set: AUC=0.97 external validation set: AUC= 0.96	Candidate diagnostic marker	Case-control study	Cross-validation, external validation	[4]
a panel composed of 15 proteins	Serum	Children with ASD	ASD: control 6-15 years	91:30	Olink proximity extension assay	AUC=0.876 （95%CI：0.697-1.000） sensitivity=0.999 （95%CI：0.997-1.000） specificity=0.662 （95%CI：0.338-0.986）	Candidate diagnostic marker	Case-control study pilot discovery	four-fold cross-validation	[5]
a panel composed of 12 differentially-expressed proteins	plasma	Children with ASD	ASD : control male: 24	30：30	Machine Learning Techniques	Training set: AUC=0.96, sensitivity= 1 validation set: AUC=0.97, sensitivity=0.88	Candidate diagnostic marker	Case-control study	Cross-validation	[6]

Age, gender and CML, CMA, DT, 3DG-H and AVE	plasma	Children with ASD	ASD (male: 247): Control (Male: 94) 5-12 years	311: 167	LC-MS/MS	Accuracy=0.89（95% CI 0.82-0.96） sensitivity=0.91（95% CI 0.82-0.99） specificity=0.74 (95% CI 0.68-0.80)	Candidate diagnostic marker	International multicenter clinical validation study	Independent multicenter external validation	[7]
IL-8	plasma	Children with ASD	ASD: Control	45: 38	Human Cytokine Twenty-Five -Plex Kit	AUC=0.858（95%CI：0.777-0.939）	Candidate diagnostic marker	Case-control study	NR	[8]
Oxidative stress markers	urine	Children with ASD	low functioning ASD: medium functioning autism: high functioning autism: control 4-12 years	15: 15: 15: 50 (male: female=4:1)	UV spectrophot-ometric	NR	Candidate marker	Case-control study	NR	[9]

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