Here are the four comprehensive tables. Critical safety note: Items marked with ☠️ DANGER have caused deaths or serious injuries and represent medical fraud/abuse—avoid entirely regardless of cost.

Table 1: Mainstream Evidence-Based (Typically Insurance Covered)

Standard of care with established efficacy; prioritize these foundations

TableCopy

Intervention	Target Domain	Notes on Access/Coverage
Discrete Trial Training (DTT)	Learning readiness, compliance, specific skills	Classic ABA format; widely covered but requires 20-40 hrs/wk commitment
Naturalistic Developmental Behavioral Interventions (NDBIs) • ESDM • Pivotal Response Treatment (PRT)	Language, social engagement, pivotal learning variables	Gold standard for language at age 4; play-based; often covered when coded as ABA or speech

• Project ImPACT		
Speech-Language Therapy (SLT)	All communication levels; apraxia-specific techniques	Crucial distinction: Evidence-based apraxia treatments include *Dynamic Temporal and Tactile Cueing (DTTC)*, *Prompts for Restructuring Oral Muscular Phonetic Targets (PROMPT)*, and *Rapid Syllable Transition Treatment (ReST)*. NOT "Spelling to Communicate" (S2C) or RPM (see Table 4)
Augmentative & Alternative Communication (AAC)	Functional communication when speech is limited	PECS, high-tech eye-gaze devices (Tobii), tablet apps (Proloquo2Go, LAMP); SGDs often covered via insurance prior authorization
Occupational Therapy (OT) • Sensory integration • Feeding therapy	Sensory regulation, daily living skills, eating	Feeding therapy (SOS approach) covered for failure-to-thrive/ARFID; sensory integration therapy has mixed evidence but standard coverage

• Motor praxis		
Physical Therapy (PT)	Gross motor delays, coordination, low muscle tone	Covered when functional motor delays documented
DIR®/Floortime™	Emotional regulation, relationship foundations	Coverage varies; sometimes covered as "developmental intervention" or out-of-pocket ($100-200/session)
Parent Management Training (PMT) • Parent-Child Interaction Therapy (PCIT) • Hanen Programs (It Takes Two to Talk)	Parent-child interaction, language modeling	It Takes Two to Talk specifically targets language delay; insurance usually covers group parent training
Social Skills Groups (Pragmatic Language)	Peer interaction, social cognition	For age 4, likely "social communication groups" rather than formal CBT; often SLP-led

Clinical Feeding Intervention	ARFID, texture aversion, choking risk	Behavioral feeding therapy vs. sensory-based; covered when medically necessary
Pharmacotherapy • Risperidone • Aripiprazole	Irritability, aggression, self-injury	Only FDA-approved meds for ASD specifically; not for core social/communication symptoms; requires metabolic monitoring
School-Based IEP Services	Academic and functional goals	Federally mandated (US); includes SLP, OT, behavioral support, and sometimes 1:1 aide

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Table 2: Investigational but Biologically Plausible

Discuss with neurologist/geneticist; evidence emerging; may require compounding pharmacies or clinical trial access

TableCopy

Intervention	Proposed Mechanism	Evidence Status	Key Considerations
Folinic Acid (Leucovorin) • 0.5-2mg/kg/day	Bypasses blocked folate receptors (autoantibodies), supports methylation	Strongest evidence in this category. Randomized trials show improvement in verbal communication for subset with FRAT antibodies or mitochondrial dysfunction	Must test: Serum FRAT (Folate Receptor Autoantibodies), CSF 5-MTHF levels. Use prescription leucovorin, not folic acid
Bumetanide • 0.5-2mg/day	NKCC1 chloride cotransporter inhibition; shifts GABA from excitatory to inhibitory (the "GABA switch")	Phase 3 trials ongoing; initial promising results for social behavior and cognition in young children; off-label diuretic	Requires ECG monitoring (QTc prolongation risk), electrolyte monitoring; diuresis side effect manageable
Sulforaphane • Broccoli sprout extract	NRF2 pathway activation; cellular stress response; heat shock proteins	Positive initial trial (Zimmerman et al.); replication studies mixed; resembles "fever effect" behaviorally	Expensive supplements; myrosinase enzyme needed for activation; GI side effects

Low-Dose Naltrexone (LDN) • 1-4.5mg qhs	Microglial modulation; anti-inflammatory; transient opioid blockade to boost endorphins	Small trials/case series for irritability and language; used widely in functional medicine	Compounded only; transient sleep disturbance initially; theoretical autoimmune mechanism
N-Acetylcysteine (NAC)	Glutamate modulation; antioxidant	RCTs show modest reduction in irritability/repetitive behavior; inconsistent replication	Taste/smell unpleasant; GI upset; 1200mg 2-3x daily dosing required
Oxytocin (Intranasal)	Social bonding hormone; amygdala modulation	Large-scale trials largely disappointing for core symptoms; may help specific social cognitive tasks	Requires stable environment to work; timing dependent; prescription compounded nasal spray
Microbiome Interventions	Gut-brain axis; immune modulation; metabolite production	Clinical trials ongoing (Arizona whole stool high-diversity); anecdotal success for	FMT only in trials or approved GI contexts; risks if donor screening inadequate;

• Fecal Microbiota Transplant (FMT) • Precision probiotics		constipation-associated regression	DIY fecal transplants dangerous
Cannabidiol (CBD) • Epidiolex	Anxiety reduction; seizure control	Approved for seizures in specific syndromes; autism trials ongoing for irritability/anxiety	Drug interactions (CYP450); must use medical-grade, not hemp-derived; THCV/CBD combinations being studied
Memantine (Namenda)	NMDA receptor antagonist; glutamate blocking	Off-label use for ADHD symptoms in ASD; fragile X trials	Cognitive enhancement modest; requires titration; contraindications with certain seizure types
Metformin	mTOR signaling; fragile X syndrome mechanism	Trials specifically for fragile X and antipsychotic-related weight gain in ASD	GI side effects common; lactic acidosis rare risk; B12

			malabsorption with long-term use
Intravenous Immunoglobulin (IVIG)	Immunomodulation; autoimmune encephalitis treatment	ONLY biologically plausible for subset with confirmed autoimmune encephalitis (PANS/PANDAS), not general ASD	$5,000-10,000/month; risk of aseptic meningitis, thrombosis, kidney failure; requires pre-authorization for immune deficiency
High-Dose Vitamin B6 + Magnesium	Neurotransmitter synthesis; cofactor support	Older literature (Rimland); recent Cochrane review suggests possible benefit but quality of evidence poor	High doses can cause peripheral neuropathy (B6 toxicity) or diarrhea (Mg); requires monitoring
Carnitine/Acetyl-L-Carnitine	Mitochondrial fatty acid transport	Evidence for genetic mitochondrial disorders; may help lethargy in ASD subset	Fishy body odor side effect; GI upset

Transcranial Direct Current Stimulation (tDCS)	Neuroplasticity modulation; cortical excitability modification	Research settings only; mixed results for language/repetition	Requires trained technician; seizure risk theoretically low but present; home devices not recommended
Repetitive Transcranial Magnetic Stimulation (rTMS)	Magnetic induction of neural activity	Research protocols for irritability and repetitive behaviors; age limits usually 12+	Risk of seizure, headache; requires sedation in young children usually

Table 3: Low Cost, Low Risk Adjuncts

"Can't hurt, might help"—appropriate as supplemental supports, not replacements for Table 1

TableCopy

Category	**Specific Intervention**	**Implementation Notes**

Environmental Modifications	Visual schedules (First-Then boards, picture calendars)	Free-printable resources online; reduces transition anxiety significantly
	Decluttered, low-distraction spaces	Clearing visual "noise"; designated "calm down" corners with blankets
	Noise-reducing headphones	$20-50 one-time; essential for sensory overwhelm in public
	Lighting adjustments (natural light, dimmable, avoid fluorescent flicker)	Low cost; headache/behavior reduction
Sensory Supports	Weighted lap pads (use with caution under 2 yrs) vs. compression vests	$30-80; proprioceptive input for regulation
	Fidget tools, chewy tubes (chewelry), stress balls	$5-20; oral and tactile sensory seeking redirection

	Epsom salt baths (magnesium sulfate)	Absorption unproven, but relaxation/ritual benefit; low risk
	Joint compressions, brushing protocol (OT-supervised)	Wilbarger protocol controversial but low physical risk if done correctly
Communication Supports	Basic sign language (ASL) even if verbal	Reduces frustration; free apps/YouTube resources
	Social stories (Carol Gray method)	Free templates; specific to child's situation
	Video modeling (recording peers/scripts)	Smartphone; watch before social event
Lifestyle	Sleep hygiene (dark room, white noise, consistent routine)	Free; critical for language consolidation
	"Heavy work" activities (pushing wall, carrying groceries, playground)	Free; proprioceptive input throughout day

	Swimming/water play	Low cost community pools; hydrostatic pressure calming
	Nature exposure ("green time")	Parks/free; attention restoration, sensory regulation
	Movement breaks every 20-30 min if sedentary	Free; essential for regulation
Dietary Supplements (Low risk if dosed appropriately)	Melatonin 0.5-3mg (immediate release for sleep onset)	OTC; safest pediatric sleep aid; use lowest effective dose; avoid extended release in young kids
	Vitamin D3 (if levels insufficient or borderline)	1000-2000 IU daily; blood test first if possible

	Omega-3 fatty acids (fish oil, 500-1000mg EPA+DHA)	Generally recognized as safe; possible GI upset/fishy burps; slight bleeding risk at high doses
	Probiotics (multi-strain, reputable brand)	Evidence weak for core autism symptoms but may help GI issues; $20-40/month
Caregiver Strategies	"Special Time" (10 min daily child-led play)	Free; attachment security and language modeling
	Limited simultaneous demands (one-step directions during stress)	Communication strategy; reduces frustration
	Reducing background media/TV noise	Free; improves auditory processing opportunities
	Consistent positive reinforcement strategies	Free; catch them being good (4:1 ratio pos:neg interactions)

Table 4: High Resource Investment (Significant Cost and/or Time Burden)

⚠️ CRITICAL SAFETY TIER ⚠️

High financial cost OR intensive time commitment; includes dangerous pseudoscience

TableCopy

Intervention	Cost/Time Investment	Risk Level	Reality Check
Hyperbaric Oxygen Therapy (HBOT)	$5,000-20,000 for 40-session protocol; 1-2 hrs/day, 5 days/week for 8+ weeks	Moderate risk: Barotrauma (ear drum damage), oxygen toxicity, claustrophobia/anxiety in children	Weak evidence: Multiple RCTs show no significant benefit over sham for core ASD symptoms; effective for radiation injury/decompression sickness, not autism
Ketogenic Diet (Classic or Modified Atkins)	Very high time cost: Requires dedicated dietitian ($200-400/hr), all meals prepared from scratch, weighing	High risk without supervision: Nutritional deficiencies, kidney stones, hyperlipidemia,	Some evidence for seizure control in ASD+epilepsy; minimal evidence for core autism without seizures; requires

	food; 20-30 hrs/week parental labor	constipation, metabolic acidosis, growth delays	metabolic monitoring every 1-3 months
Neurofeedback (EEG Biofeedback)	$3,000-10,000+ for 40-session course; 2-3x weekly visits	Low physical risk (headache, fatigue) but opportunity cost risk: Time/funds diverted from evidence-based treatment	Mixed evidence; considered experimental by neurology; expensive "qEEG" mapping often upcharge
Therapeutic Horseback Riding (Hippotherapy)	$100-200/session; weekly ongoing; often 6-month minimum for benefit	Low physical risk (falls)	Limited evidence for specific language gains; insurance may classify as "recreational" and deny coverage; sensory benefit real but not curative
Intensive Out-of-State Comprehensive Evaluations	$5,000-15,000 (Autism centers of excellence, "top doctors")	Low physical risk	Often redundant if good local care available; diagnostic overshadowing risk; medical tourism for

			autism evaluations rarely yields actionable new data
Vision Therapy/Behavioral Optometry	$3,000-8,000 for in-office sessions; "prism lenses" additional $500-1000	Moderate concern: Eye exercises don't treat autism; delays addressing actual communication needs	Controversial field; treat convergence/accommodation issues separately from autism; no evidence for "visual processing" as autism cause
Auditory Integration Training (AIT) (Berard method, Tomatis)	$1,500-3,000; 10 sessions over 2 weeks	Low physical risk (hearing damage from poorly calibrated equipment)	No evidence for language improvement; pseudo-scientific claims about "retraining" auditory processing debunked
Gluten-Free/Casein-Free Diet (Strict Implementation with	$300-600/month additional food costs; significant meal prep time;	Low-moderate risk: Nutritional deficiencies (calcium, fiber, B	Large-scale trials show no benefit for core ASD symptoms beyond placebo; may

Replacement Products)	social restriction burden	vitamins), social isolation, reinforcing restrictive eating patterns	help specific GI inflammation or celiac disease only
Specialized Private Autism Schools	$30,000-100,000+/year tuition	Opportunity cost; may use non-evidence-based methods	Varies wildly—some excellent (evidence-based ABA), some dangerous (see below); segregated setting may limit generalization

☠️ DANGER: PSEUDOSCIENTIFIC/FRAUDULENT - AVOID COMPLETELY

TableCopy

Intervention	**Why It's Here**	**The Harm**
CEASE "Therapy" (Complete Elimination of Autistic Spectrum Expression)	Homeopathic protocol claiming to "detox" vaccines, ultrasounds, medications using "high dilutions"	Medical fraud: Based on disproven vaccine-autism link; involves giving children preparations of vaccines and other substances; delays actual

		treatment; vitamin A toxicity protocols in some variants
Chelation Therapy (EDTA, DMPS, DMSA, "natural" chelators)	Claims to remove "mercury" or "heavy metals" causing autism	DEADLY: Has killed children via cardiac arrest and hypocalcemia; no evidence autistic children have elevated heavy metals; dangerous misdirection from evidence-based care
Miracle Mineral Solution (MMS) CD/MMS/Chlorine Dioxide	Claims to kill "parasites" causing autism; promoted on alternative sites	CHLORINE DIOXIDE (INDUSTRIAL BLEACH): Causes vomiting, diarrhea (claimed as "detox"), hemolysis, renal failure, death; child abuse when administered to disabled children
Stem Cell Therapy (Offshore clinics: Mexico, Panama, Thailand, etc.)	Claims to "repair" brain with umbilical/embryonic stem cells	$15,000-50,000+; Tumor formation (uncontrolled cell growth), stroke from particulate emboli, infection, immune reactions; no evidence of benefit; FDA has issued warnings

Hyperbaric "Mild" Chambers (Home rental units)	Soft-sided chambers rented for home use	Explosion/fire risk with supplemental oxygen; inadequate pressure for legitimate medical use; waste of money

Note on "Spelling" Methods (S2C/RPM)

Spelling to Communicate (S2C) and Rapid Prompting Method (RPM), often promoted through TikTok/Instagram as "unlocking" hidden intelligence via letterboards, belong in Table 4 (High Risk) despite low cost, due to opportunity cost and authorship concerns.

- The Issue: Research indicates messages may originate from facilitator (ideomotor/automatic movements), not the child—similar to debunked Facilitated Communication (FC).
- The Risk: False hope, educational neglect (not teaching actual functional communication), allegations of abuse based on false typed allegations, diversion from AAC systems that preserve autonomy.
- Evidence: No controlled studies validate independent authorship; multiple cases of facilitators inadvertently guiding responses.

Alternative: Focus on independent AAC systems (eye-gaze tech, independent typing with fading prompts photographed from behind) where authorship can be validated.
also include a comprehensive set of testing that should be requested from medical professionals and companies where those tests can be procured with or without insurnace

EditCopyShare

Comprehensive Autism Diagnostic Testing Guide for a 4-Year-Old Child

Here is the comprehensive testing roadmap, organized by clinical indication and insurance likelihood. CRITICAL: Genetic and metabolic tests require pre-test counseling about incidental findings (cancer risks, carrier status) — always go through a geneticist when possible.

Tier 1: Standard of Care (Typically Insurance Covered)

Order through: Primary Care, Developmental-Behavioral Pediatrics, or Neurology

TableCopy

Test/Evaluation	Clinical Purpose	Where to Obtain	Insurance Notes
Comprehensive Metabolic Panel (CMP)	Kidney/liver function, electrolytes, glucose baseline	LabCorp, Quest, hospital lab	Covered; required baseline before starting any meds
CBC with Differential	Anemia, infection, immune status	Standard labs	Covered

Thyroid Function (TSH, Free T4)	Rule out hypothyroidism causing developmental delays	Standard labs	Covered
Lead Level (Blood)	Rule out heavy metal toxicity (often overlooked source of developmental regression)	Standard labs	Covered; required in many states at 12/24 months
Vitamin D 25-OH	Deficiency linked to autism severity, immune function	Standard labs	Usually covered if deficiency suspected/symptoms
Iron Studies (Ferritin, TIBC)	Restless legs, sleep disturbance, cognitive impact	Standard labs	Covered; low ferritin common in ASD even without anemia
Hearing Evaluation (ABR or Comprehensive Audiological)	Rule out hearing loss (must be done before Autism diagnosis finalized)	Pediatric audiology clinics, ENT	Covered; often requires sedation for ABR in uncooperative kids

Vision Screening (Comprehensive Eye Exam)	Rule out vision impairment, strabismus	Pediatric ophthalmology	Covered annually
** EEG (Sleep-deprived or Sedated)**	Rule out subclinical seizures (spike-and-wave without obvious convulsions); 25-30% of ASD have abnormal EEGs	Hospital neurology, epilepsy monitoring units	Covered with neuro indication (regression, staring spells, language plateau)
Sleep Study (Polysomnography)	Sleep apnea, restless leg, parasomnias affecting behavior/learning	Pediatric sleep centers	Covered if snoring, gasping, or severe insomnia documented
Fragile X DNA Testing (FMR1)	Most common known genetic cause of ASD (2-3% of boys); reproductive implications for family	Standard labs (cytogenetics)	Always covered if developmental delay present

Chromosomal Microarray (CMA)	Detects copy number variants (deletions/duplications) like 16p11.2; 5-10% yield in ASD	Standard labs	Covered; first-tier genetic test per genetics guidelines

Tier 2: Specialized Genetic/Metabolic (Often Prior-Auth Required)

Order through: Medical Geneticist, Metabolic Specialist, or Neurologist with genetics interest

TableCopy

Test	**What It Detects**	**Where to Obtain**	**Cost Without Insurance**
Whole Exome Sequencing (WES) - Trio (Proband + both parents)	Single-gene causes of ASD (SHANK3, SCN2A, PTEN, etc.); 15-25% diagnostic yield	GeneDx, Invitae, Ambry Genetics, hospital genetics labs	$2,500-5,000 (Trio); many labs have patient assistance programs ($0-250 if <400% federal poverty level)

Mitochondrial DNA Analysis + Nuclear Mitochondrial Gene Panel	Mitochondrial dysfunction (5-10% of ASD); affects treatment approach (folate, carnitine, etc.)	Cincinnati Children's Diagnostic Lab, GeneDx, Baylor Genetics, Muscular Dystrophy Association clinics	$1,500-3,500; coverage variable - often covered if hypotonia, fatigue, multisystem involvement
MTHFR Genotyping	Methylation gene variants (controversial but may inform folate dosing)	23andMe (consumer), or medical labs (LabCorp #511238)	$150-300 out-of-pocket; rarely medically necessary enough for insurance
** Folate Receptor Alpha Autoantibody Test (FRAT)**	Blocking/binding antibodies preventing folate transport into brain (Cerebral Folate Deficiency)	FRAT (folatereceptor.com) - mail-in kit available; also available through medical providers	~$300-450; not covered by most insurers (investigational); critical if considering leucovorin
Cerebrospinal Fluid (CSF) 5-MTHF	Definitive test for cerebral folate deficiency (low spinal fluid folate despite normal blood)	Hospital neurology (lumbar puncture required)	Covered as procedure; requires sedation in 4-year-old; LP risk

Organic Acids (OAT) - Urine	Mitochondrial dysfunction markers, yeast overgrowth, oxalate metabolism	The Great Plains Laboratory, Genova Diagnostics, standard hospital labs	$300-400 out-of-pocket; insurance sometimes covers if metabolic disorder suspected
Plasma Amino Acids	Inborn errors of metabolism, serine deficiency disorders	Hospital lab, specialty labs	Usually covered if regression / developmental concerns
Acylcarnitine Profile	Fatty acid oxidation disorders, carnitine deficiency	Newborn screening follow-up, metabolic clinics	Usually covered
Very Long Chain Fatty Acids (VLCFA)	Adrenoleukodystrophy (if regression/behavioral changes)	Peroxisomal disease centers	Covered with red flags

Tier 3: Neurodevelopmental/Behavioral Assessment (Usually Covered)

Order through: Developmental-Behavioral Pediatrics, Child Neuropsychology, Autism Centers

TableCopy

Assessment	Purpose	Administered By	Coverage
ADOS-2 (Autism Diagnostic Observation Schedule)	Gold standard autism diagnostic observation	Psychologist, SLP, developmental pediatrician (must be research reliable)	Covered as part of diagnostic evaluation; CPT code 90791/90792 + 96116
ADOS-2 Toddler Module	Specifically for 12-30 months (your child is 4, so Module 1 or 2)	Same as above	Covered
ADI-R (Autism Diagnostic Interview-Revised)	Parent interview for diagnostic history	Psychologist, psychiatrist	Often bundled with ADOS

Bayley Scales of Infant Development-4 (BSID-4)	Cognitive, language, motor functioning	Neuropsychologist, developmental pediatrician	Covered; re-eval every 6-12 months in young children
Mullen Scales of Early Learning	Alternative to Bayley for young/delayed children	Psychologist	Covered
Vineland Adaptive Behavior Scales-3	Daily living skills, communication, socialization (crucial for IEP planning)	Interview with caregiver	Covered; often required by schools
PEP-3 (Psychoeducational Profile)	Autism-specific learning profile for educational planning	Special educator, psychologist	School-based or private insurance
Language Samples (MLU, Type-Token Ratio)	Spontaneous language analysis (more valid than standardized tests for minimally verbal kids)	SLP	Covered as part of speech eval

CASL-2 or CELF-P2	Standardized language testing	SLP	Covered
Sensory Profile-2 or SPM	Sensory processing patterns	OT	Covered by some plans; sometimes out-of-pocket ($75-150)

Tier 4: Immune/Autoimmune/Infectious (Mixed Coverage)

Order through: Immunologist, Rheumatologist, or Autism Specialist MD

TableCopy

Test	**Indication/Source**	**Lab/Company**	**Cost/Access**
Anti-Streptococcal Antibodies (ASO, Anti-DNase B)	PANS/PANDAS evaluation if sudden OCD/regression	Standard labs	Covered

Cunningham Panel (Autoimmune Basal Ganglia)	Autoimmune neuropsychiatric disorders	Moleculera Labs (moleculeralabs.com)	~$900-1,200; rarely covered by insurance; payment plans available
Lyme Western Blot + ELISA	If tick exposure, endemic area, fluctuating symptoms	Standard labs	Covered with appropriate history
Food Allergy Testing (IgE)	True IgE-mediated allergies (not "sensitivities")	Allergy/Immunology clinic	Covered if hives, anaphylaxis, eczema
Celiac Panel (tTG-IgA, total IgA)	IgA deficiency common in ASD; celiac rule-out	Standard labs	Covered with GI symptoms
Inflammatory Markers (CRP, ESR, ferritin)	Baseline inflammation	Standard labs	Covered

Cytokine Panel (Th1/Th2)	Immune dysregulation research	Cyrex Labs (Array 12), Quest (select cytokines)	$300-600; investigational; not covered
Strep throat culture rapid + culture	PANDAS flare management	Pediatrician	Covered

Tier 5: Gastrointestinal/Nutritional (Often Out-of-Pocket)

Order through: Gastroenterologist (for procedures) or Functional Medicine MD

TableCopy

Test	**Clinical Utility**	**Companies/Access**	**Insurance Reality**
Comprehensive Stool Analysis (CSA)	Digestion, absorption, microbiome, parasites	Genova Diagnostics (GI Effects), Doctor's Data, Diagnostic Solutions (GI-MAP)	$300-500; not covered by standard insurance; "functional medicine"

IgG Food Sensitivity Testing	Controversial: Not validated for autism treatment; may show leaky gut markers	Every functional medicine lab offers this	$200-400; Not covered; American Academy of Allergy considers IgG testing non-diagnostic
Functional Organic Acids (Nutritional OAT)	Yeast/fungal markers, oxalates, mitochondrial metabolites	The Great Plains Laboratory	$300-350; Not covered
Hair Mineral Analysis	PSEUDOSCIENCE: Unreliable for mineral status; affected by hair color/treatment	Various labs	Not recommended; waste of money
Heavy Metal Provoked Urine Test	DANGEROUS/MISLEADING: Used to justify chelation; artificially "provoked" with DMSA shows false elevation	Chelation clinics	Avoid; this is a red flag for quackery

SIBO Breath Testing (Hydrogen/Methane)	Small intestinal bacterial overgrowth if bloating/pain/constipation	Commonwealth Diagnostics, standard GI practices	Sometimes covered; often $150-300 out-of-pocket
Endoscopy/Colonoscopy with Biopsies	Eosinophilic esophagitis, colitis, celiac confirmation	Hospital GI	Covered with symptoms; require anesthesia in 4-year-old
Pancreatic Elastase	Exocrine pancreatic insufficiency (fat malabsorption)	Standard labs	Covered

Specific Company/Lab Directory for Out-of-Pocket/ Specialized Testing

TableCopy

Company/Organization	**Specialization**	**Contact/Access**	**Financial Assistance**

GeneDx	Genetic testing leader (WES, targeted panels)	genedx.com	GeneDx Cares program; patient assistance
Invitae	Medical-grade genetic testing	invitae.com	$250 patient-pay option for many panels; accepts HSA
Ambry Genetics	Autism gene panels, exome	ambrygen.com	Ambry CARE program
FRAT (folatereceptor.com)	Folate receptor autoantibodies only	Mail-order kit available; requires physician signature	None; ~$300-400 flat rate
Moleculera Labs	Cunningham Panel (autoimmune neuro)	moleculeralabs.com; requires physician account	Self-pay ($925); some insurance reimbursement possible

Neuro need (neuroneed.com)	Specialized neurological supplements + some testing	Provider-only; find practitioner on site	N/A
The Great Plains Laboratory	OAT, mycotoxin testing, food sensitivities	gpl4u.com	Direct access in some states; requires physician in others
Genova Diagnostics	Comprehensive stool, nutritional, hormonal	gdx.net	Cash-pay discounts; patient direct access varies by state
Cyrex Laboratories	Autoimmune/food reactivity arrays	cyrexlabs.com	Provider-only; expensive ($300-800 per array)
Mayo Clinic Laboratories	Specialized metabolic, autoimmune	Through ordering physician; reference lab	Insurance usually covers if ordered by specialist

Boston Children's Hospital Laboratory	Research-grade metabolic	Requires specialist referral	Insurance/billing standard

Red Flag Tests to AVOID (Fraudulent/Invalid)

TableCopy

Test/Company	**Why It's Fraudulent**	**The Damage**
Hair Analysis for "Heavy Metal Toxicity"	Hair mineral content does not reflect body burden; no standardization	Falsely claims mercury toxicity requiring dangerous chelation
Live Blood Cell Analysis	Dark-field microscopy showing "parasites" or "yeast" in live blood	Complete pseudoscience; camera artifact interpretation
Electrodermal Testing (Vega)	"Energy" testing for food allergies/sensitivities	No scientific validity; delays appropriate allergy testing

Urine Toxic Metals Challenge Test	Provoked excretion using chelating agents to create artificially high numbers	Used to justify dangerous chelation therapy
Stool PCR panels from non-CLIA labs	Unvalidated microbiome testing	Misleading "dysbiosis" claims leading to unnecessary restrictive diets
Online "Autism Biomarker" panels	Direct-to-consumer labs selling non-specific inflammation markers as "autism tests"	Expensive ($500-2000) for tests with no diagnostic validity

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Sample Diagnostic Script for Your First Genetics Visit

"We want a comprehensive workup to guide treatment. Specifically, we're requesting:

1. *Chromosomal microarray and Fragile X (standard)*
2. *Whole exome sequencing trio if microarray negative*
3. *Mitochondrial DNA and nuclear mitochondrial panel given low tone/fatigue/folate response*
4. *FRAT testing for folate receptor antibodies (we'll pay out of pocket if denied)*
5. *Targeted metabolic panel including plasma amino acids, acylcarnitine, pyruvate/lactate*
6. *Thyroid panel with antibodies, B12, homocysteine, MMA*

We also want to rule out autoimmune/encephalitic processes given language regression concerns [if applicable] - would you order the Cunningham Panel or refer to immunology?"

Next steps: Bring this list to your geneticist, but let them guide prioritization based on your child's specific phenotype (dysmorphic features? growth charts? seizure history?). The geneticist will also discuss "secondary findings" — unrelated cancer/heart risks that may be found incidentally on exome sequencing. You can opt out of receiving these if preferred.

K2.5 Thinking