For **autism**, the functional medicine lab tests that could provide valuable insights into potential underlying factors, including gut health, nutritional status, and inflammation, are as follows:

1. Organic Acids Test (OAT)

The OAT is particularly useful for assessing metabolic byproducts that reflect **gut health**, **neurotransmitter imbalances**, **nutritional deficiencies**, and **neuroinflammation**, all of which can be relevant to autism. Key markers to look for:

- **Arabinose**: Elevated levels are often associated with fungal overgrowth in the gut, which could contribute to **gut-brain axis** issues and may exacerbate **autism spectrum disorder (ASD)** symptoms.
- **2-Hydroxybutyric Acid**: Elevated levels can indicate issues with **ketone metabolism** or mitochondrial dysfunction, which may impact **brain function** and **energy production**, potentially affecting **cognitive and behavioral function** in autism.
- **Neurotransmitter markers** (dopamine, serotonin, etc.): Imbalances in neurotransmitters may contribute to **mood disorders**, **hyperactivity**, and **focus issues**, common in autism.
- **Folic Acid & B12 Metabolites**: Deficiencies or imbalances in **B12** and **folate** can contribute to **neurological and developmental** symptoms, including **speech delays** or **language difficulties** seen in some individuals with autism.
- **Oxalic Acid**: Elevated levels may be linked to **gut dysbiosis** and **systemic inflammation**, both of which could exacerbate autism-related symptoms.

2. Gut Stool (Gut Health)

The **Gut Stool** is useful for identifying underlying **gut dysbiosis**, which is often seen in children with autism. The markers in this test can provide valuable information on **pathogens**, **parasites**, and **bacterial imbalances** that could contribute to the development or exacerbation of ASD symptoms.

- **Gut Microbiome Profile**: Specific imbalances or bacterial overgrowth (e.g., **Clostridia** or **Firmicutes**) may exacerbate **inflammation** or **neurotransmitter imbalances** that affect **mood, cognition,** and **behavior**.
- **Zonulin**: Elevated levels of zonulin indicate **intestinal permeability** (leaky gut), which is associated with increased **inflammation** and may impact **brain function**, potentially contributing to **autism** symptoms.
- **Calprotectin**: Elevated calprotectin indicates **intestinal inflammation**, which may exacerbate **gut-brain axis**imbalances, potentially increasing the severity of ASD symptoms.

3. Food Sensitivity (Food Intolerance Test)

Food sensitivities are common in individuals with autism, and they can contribute to **systemic inflammation**, **gut issues**, and **neuroinflammation**, all of which can worsen symptoms. This test looks at sensitivities to common foods that may trigger these reactions.

- **Common food triggers**: Gluten, dairy, soy, eggs, and other allergens can worsen **gut health** and **brain function**, leading to heightened symptoms of **autism**, including **irritability**, **focus issues**, and **sensory sensitivities**.

4. Neurotransmitter Test

The **Neurotransmitter Test** is useful to assess the status of key brain chemicals, which can be highly relevant for autism. Some individuals with autism have imbalances in neurotransmitters that affect **mood**, **attention**, and **behavior**.

- **Dopamine and Serotonin**: Imbalances in these neurotransmitters can lead to **hyperactivity**, **impulsivity**, and **mood instability** often seen in autism. Testing can provide insights into **neurotransmitter imbalances** and suggest treatments to support **focus** and **mood regulation**.
- **GABA (Gamma-Aminobutyric Acid)**: Low GABA levels can contribute to **anxiety** and **agitation**, which are common in autism.

5. Heavy Metals Test

Toxic heavy metals, such as **mercury**, **lead**, and **arsenic**, have been linked to **autism** symptoms. Elevated levels of these metals can contribute to **neurotoxic effects** that impair cognitive function and lead to **behavioral issues**. The heavy metals test helps to assess exposure and the need for detoxification.

- **Mercury**: A known neurotoxin that has been linked to **developmental issues** and **neurological impairments**. Elevated mercury levels can exacerbate **autism** symptoms, particularly in **language delays**, **motor coordination issues**, and **sensory sensitivities**.
- **Lead and Arsenic**: These toxins are also known to impair **neurological development** and can contribute to **focus and behavioral challenges** in children with autism.

6. Mycotoxins Test

This test is helpful for detecting **mold exposure** and **mycotoxins**, which can contribute to **neuroinflammation** and **cognitive dysfunction**. Mold exposure has been associated with worsening symptoms in individuals with autism, especially regarding **mood disorders** and **behavioral issues**.

- **Mycotoxins**: Mold exposure can lead to **systemic inflammation** and **brain fog**, worsening symptoms like **irritability** and **sensory overload** often seen in autism.

Conclusion:

The **Organic Acids Test**, **Gut Stool**, **Food Sensitivity Test**, **Neurotransmitter Test**, and **Heavy Metals Test** are all valuable tools for assessing underlying issues that may contribute to autism symptoms. These tests help identify **nutritional deficiencies**, **gut dysbiosis**, **neurotransmitter imbalances**, **food sensitivities**, and **toxic exposures**, all of which can influence **behavior**, **focus**, and **mood** in children with autism.