Accurate identification can help improve the care and management of patients with AADC deficiency\(^1,2\)

Aromatic L-amino Acid Decarboxylase (AADC) deficiency is a genetic disease associated with defects in neurotransmitter synthesis that can lead to a manifestation of a broad spectrum of symptoms. The most common symptoms of this autosomal recessive disorder include hypotonia, developmental delay, and movement disorders, especially oculogyric crises.\(^3,6\)

**Diagnostic pathway for suspected AADC deficiency\(^2,4\)**

<table>
<thead>
<tr>
<th>Core diagnostic tests</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirmatory single gene or genetic panel</td>
<td>Mutation(s) in the DDC gene</td>
</tr>
<tr>
<td>Plasma enzyme activity assay AND/OR CSF neurotransmitter metabolite panel</td>
<td>LOW plasma AADC enzyme activity REDUCED HVA, 5-HIAA, and MHPG ELEVATED 3-OMD, L-dopa, and 5-HTP NORMAL pterins</td>
</tr>
</tbody>
</table>

Current consensus guidelines recommend genetic testing in combination with CSF neurotransmitter metabolite panel and/or plasma AADC enzyme activity assay to confirm a diagnosis of AADC deficiency.\(^4\)

Genetic testing can help uncover mutation(s) in the **DDC** gene to confirm a diagnosis of AADC deficiency and is available at no cost through PTC Pinpoint\(^TM\).\(^4\)

3-OMD=3-O-methyl; 5-HIAA=5-hydroxyindoleacetic acid; 5-HTP=5-hydroxytryptophan; CP=cerebral palsy; CSF=cerebrospinal fluid; DDC=dopa decarboxylase; HVA=homovanillic acid; L-dopa=L-3,4-dihydroxyphenylalanine; MHPG=3-methoxy-4-hydroxyphenylglycol; MRI=magnetic resonance imaging.
No-cost genetic testing is available through PTC Pinpoint™*

PTC Therapeutics and Invitae have partnered to offer no-cost genetic testing, including:

- Programs for individuals at all ages with a suspected neurotransmitter disorder or symptoms suggestive of CP in the absence of risk factors for acquired brain injury
- Post-test genetic counseling
- Family variant testing for blood relatives of those with confirmed or likely pathogenic variants

Learn more about PTC Pinpoint below or contact your PTC Therapeutics representative.

*Both the Neurotransmitter Disorders Panel and CP Spectrum Disorders Panel are available for order through Invitae and are separate from the no-cost PTC Pinpoint program.

Additional testing for AADC deficiency

Other tests that may be helpful include:

- Blood level measurement of 3-OMD
- Urinary organic acid analysis

Why test for 3-OMD?

Reduced AADC enzyme activity results in an increase in L-dopa, 3-OMD, and 5-HTP, and a decrease in the neurotransmitter metabolites HVA and 5-HIAA.

Typically, the diagnosis of AADC deficiency requires CSF neurotransmitter analysis. However, 3-OMD, which is a catabolic product of L-dopa that accumulates in individuals with AADC deficiency, can be detected in their blood. 3-OMD measurement in plasma represents a less invasive, simple, rapid, and valid measure for detecting AADC deficiency.

References: