Drug Development for Autism Spectrum Disorder: Challenges and Opportunities

US Regulatory Perspective

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So you think you have a biomarker…

- Drug Development Tool (DDT) Qualification Programs
- DDTs are methods, materials, or measures that have the potential to facilitate drug development
  - Animal models
  - Clinical outcome assessments
  - Biomarkers

Mission and Objectives

- To qualify and make DDTs publicly available for a specific context of use to expedite drug development and review of regulatory applications
- To provide a framework for early engagement and scientific collaboration with FDA to facilitate DDT development
- To facilitate integration of qualified DDTs in regulatory review
- To encourage development of DDTs for contexts of use with unmet needs
- To encourage the formation of collaborative groups to undertake DDT development programs to increase the efficiency and lessen the individual resource burden incumbent with DDT development
- To encourage innovation in drug development
- To create a shared learning environment for exchanging information on DDT development

Biomarker Qualification Program

- Three stages:
  - Letter of Intent
  - Qualification Plan
  - Full Qualification Package

Experience with N170

- Biomarker Qualification Program
- Letter of Intent submitted November 1, 2018
- “N170 to upright human faces”
- Full letter available publicly on the web
  - Can be a useful resource to others considering a biomarker submission
  - Provides insight into the review process and the kind of information FDA is looking for to support qualification

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LOI DECISION LETTER

DDTBMQ000083

May 6, 2019

James McPartland, Ph.D.
Associate Professor
Yale Child Study Center
230 South Frontage Road
New Haven, CT 06520

Dear Dr. McPartland:

We are issuing this Letter of Intent (LOI) Decision Letter to notify you of our decision on your proposed qualification project submitted to the Center for Drug Evaluation and Research (CDER) Biomarker Qualification Program (BQP). We have completed our review of your LOI submission of November 1, 2018 and have concluded to **Accept** it into the CDER BQP.[1] We support and encourage the study of biomarkers for autism spectrum disorder (ASD).

You have proposed qualification of N170 to upright human faces (N170) as a tool to identify a homogenous subgroup within ASD for use in enrichment of clinical drug development trials. As this biomarker development effort is refined in subsequent BQP submissions, the submitted data, the specifics of your context of use (including the target patient population), the specific analytics and the design of study(ies) used in the clinical validation of the biomarker will ultimately determine which of the comments below may be the most applicable to your qualification effort.

Based on our review of the LOI, we agree there is an unmet need, and the development of N170 to upright human faces (N170) as a biomarker, with consideration to other clinical characteristics, may be helpful in clinical drug development trials.

When you are prepared to make a submission to the next stage in the 507 DDT qualification process, please prepare a Qualification Plan (QP) submission that addresses the scientific issues and the recommendations outlined below. A QP contains details of the analytical and software validation of the biomarker measurement method, detailed summaries of existing data that will support the biomarker and its context of use (COU), and descriptions of knowledge gaps and how you propose they will be mitigated. If future studies are planned, please include detailed study protocols and the statistical analysis plan for each study as part of your QP submission. We have provided initial comments based on your LOI and hope these comments may be useful as you proceed with the preparation of your initial QP submission.

When evaluating biomarkers prospectively in clinical trials, sponsors are encouraged to submit study data

[1] In December, 2016, the 21st Century Cures Act added section 507 to the Food, Drug, Cosmetic Act (FD&C Act). FDA is now operating its drug development tools (DDT) programs under section 507 of the FD&C Act.


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