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Name & Address

First Name: Matthew
 Last Name: Belmonte
 Degree:
 Position Title: Senior Research Associate
 Department: Autism Research Centre
 Institution Name: University of Cambridge
 Institution Address: Douglas House, 18b Trumpington Road
 City: Cambridge
 State: FOREIGN
 Zip Code: UK CB2 2AH
 E-Mail Address: belmonte@mit.edu
 Phone #: +44.1223.746.057

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Affiliation

Academic Institution
 You are :

Questions:

A. What are the disease processes and public health concerns that are relevant to environmental sciences?
 I approach this question from the perspective of autism, a complex developmental disorder whose aetiology involves the interaction of multiple genetic and environmental liabilities. There hasn't been much communication or overlap between autism scientists and those studying the neural developmental effects of toxins, and this cultural barrier needs to be breached.

B. How can environmental sciences be used to understand how biological systems work, why some individuals are more susceptible to disease, or why individuals with the same disease have very different clinical outcomes?
 Key to understanding complex and subtle environmental effects is to coordinate environmental exposures and genotype (Hornig, Chian, & Lipkin, Molecular Psychiatry 2004).

C. What are the major opportunities and challenges in global environmental health?
 Many different environmental exposures and genetic liabilities may converge on final common pathways in the disruption of neural connectivity. The challenge is to aggregate all of the data and to identify the interactions involved. Studies of single factors are not as productive for understanding complex disorders as are studies that model such interactions.

D. What are the environmental exposures that need further consideration?
 Low-level mercury exposure remains a huge question mark. From mercury released during combustion of coal to the ethylmercury in thiomersal, many incompletely answered questions remain. In addition, polybrominated diethyl ethers, so widely used as flame retardants especially in products used by children, disrupt thyroid function and may disrupt the development of normal neural connectivity (Kenet, Merzenich, & Pessah, International Meeting for Autism Research 2005).

E. What are the critical needs for training the next generation of scientists in environmental health?
 The most crucial issue is communication beyond the traditional bounds of environmental health sciences. Scientists need to understand the genetic and other contexts of the problems that they face.

F. What technology or infrastructural changes are needed to fundamentally advance environmental health science?

The NIEHS also solicits nominations for individuals to participate in a workshop to discuss the plan in more detail. Whom would you recommend to serve as a planning group member?

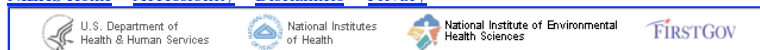
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