

## **Lay Summary**

**BRAIN UK Ref: 19/018**

### **Somatic mutation in human macrophages: defining ontogeny and mechanisms of inflammatory disease**

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Macrophages are cells which form a crucial role in the integrity of the normal immune system but also in the generation of inflammatory diseases. We wish to study what role these cells have in the development of several rare but severe inflammatory diseases which can affect the nervous system. We have noted that the way in which they do so is very similar and we aim to define how these cells gain access to the nervous system and what changes in their genetic biology occur which can allow the disease to take hold. Our research will look at the genetic material within these cells and compare the results to normal tissue and each of the four diseases. This will allow us to understand how the macrophages change from normal immune function to cells which induce a disease process leading to damage of the affected tissues.