PROSPAX

PROSPAX Overview

The **PRO**gression chart of **SPA**stic ata**X**ias (PROSPAX) project studies the progression of spastic ataxias over time. It is initially focused on Autosomal Recessive Spastic Ataxia of Charlevoix-Saguenay (ARSACS) and SPG7, but is establishing a more general research framework that will be applicable to other spastic ataxias in the future.

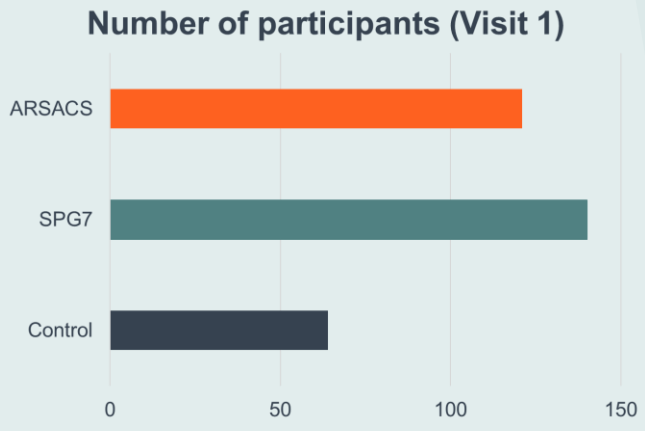
As the numbers of people with these specific ataxias are quite low, working together across different countries is important to gather enough information about the conditions, helping to prepare for clinical treatment trials. This is called 'trial-readiness' and is extremely important for rare conditions. The PROSPAX project is a large international collaborative study which unites all major European and Canadian ataxia and spastic paraplegia networks.

Natural history study

Natural history studies collect health information over a period of time to better understand how a condition progresses. The PROSPAX natural history study is a 2-year study looking at the progression of ARSACS and SPG7.

The study has clinical sites in Germany, the Netherlands, France, Italy, Turkey, the UK, and Canada. Participants visit their clinical site 3 times over 2 years to have clinical assessments and samples collected e.g., blood samples.

The study has been very successful, recruiting more participants than originally aimed. The 3rd clinical site visits are now starting to take place.



Developing a home-based assessment

At-home assessment could provide a more accurate representation of the day-to-day changes in a condition. It may also be more convenient than visiting a hospital to have assessments when participating in a clinical trial. During the PROSPAX project, a smartphone app has been developed to measure different aspects of spastic ataxias.

App users complete 5 short tasks to measure i) gait, ii) stance, iii) finger tapping, iv) rapid alternating hand movements and v) speech. The app is linked to a smartwatch so that day-to-day movement can be measured. There are also questions on the impact of symptoms.

The team have completed a small study where people tested the app at home. The study included 11 people with SPG7, 6 people with ARSACS and 5 people without ataxia/HSP. The team are currently implementing feedback from the study to create an improved version of the app.

Understanding the mechanisms and finding markers of progression

It is very important to find markers of progression as the researchers conducting any future clinical trials need a way of measuring changes in the condition to show that a treatment works.

The PROSPAX project is using a cross-species approach.

Identify and validate molecular biomarkers of disease progression and unravel novel pathways underlying cortical motoneuron and Purkinje cell degeneration in a mouse/human cross-species approach.

Identifying brain imaging changes

Aim to map the microstructures in the brain that underly the progression of ARSACS and SPG7. identify brain imaging outcome parameters for SPAX trials by automated MRI volumetry. MRI imaging data has been collected from various PROSPAX

Accelerating diagnosis of spastic ataxias

Many people with spastic ataxia do not know what causes their condition. The aim of this part of PROSPAX is to identify new genetic mutations which may cause spastic ataxias. Accelerate genomic diagnosis in unsolved SPAX patients by identification of novel SPAX genes, functional variant interpretation, and comprehensive genotype-phenotyping.

Developing a statistical model of ARSACS and SPG7 progression

Establish an integrated model of progression and mechanistic evolution of SPAX disease, including modelling of the relative sequence of change, and to establish a sustainable resource of multimodal SPAX data for future clinical trials.

Patient partner approach and patient-centred outcomes

It is very important that people with ataxia and HSP are actively involved in the research process. PROSPAX has 5 patient partners who contribute to the project; sharing their experiences and helping design the research.

The patient partners have been particularly involved developing a patient reported outcome measure for ataxia and HSP. Workpackage lead by patient organizations as active equitable research partners. Lead scientific identification of patient relevant concepts of interest, development of novel patient-centered outcome measures (PCOMs), inform the consortium's research as patient-partners according to a standardized patient-partner approach, engage patients and the general public. Both surveys received a very high responses from people with ataxia and HSP from all over the world: over 1100 responses for Survey 1 and over 800 responses for Survey 2. See our infographic with some initial survey results here (add link).

This leaflet was produced by patient advocacy organisations, patient-partners, and researchers.