GOBIOM Case Study
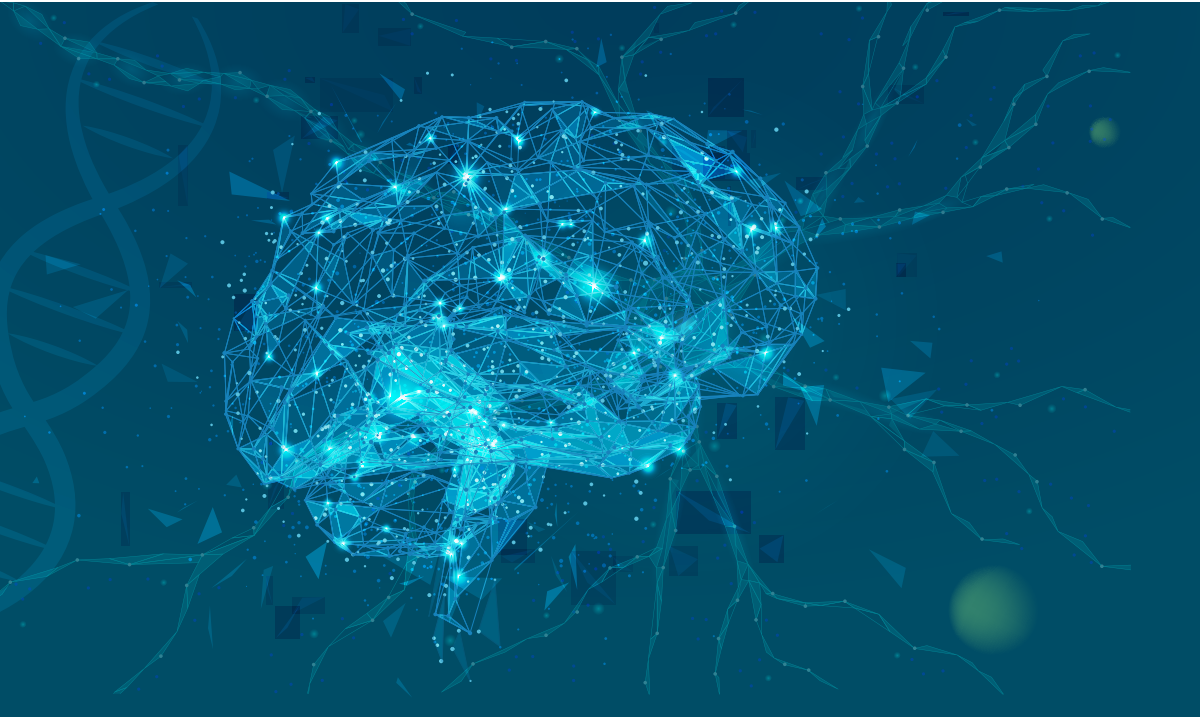
Pharmacodynamic and Safety Biomarkers in Multiple Sclerosis

The Purpose

To identify and explore pharmacodynamic and safety biomarkers in Multiple Sclerosis using Global Online Biomarker Platform (GOBIOM).

About the Client

COMPANY
Big Pharma

LOCATION
US

THERAPEUTIC AREA
CNS

Client Requirement

The client is a large pharma based out of US focused primarily on research and development of therapeutics targeting various cancers and were keen to explore pharmacodynamic and safety biomarkers in Multiple Sclerosis (MS).
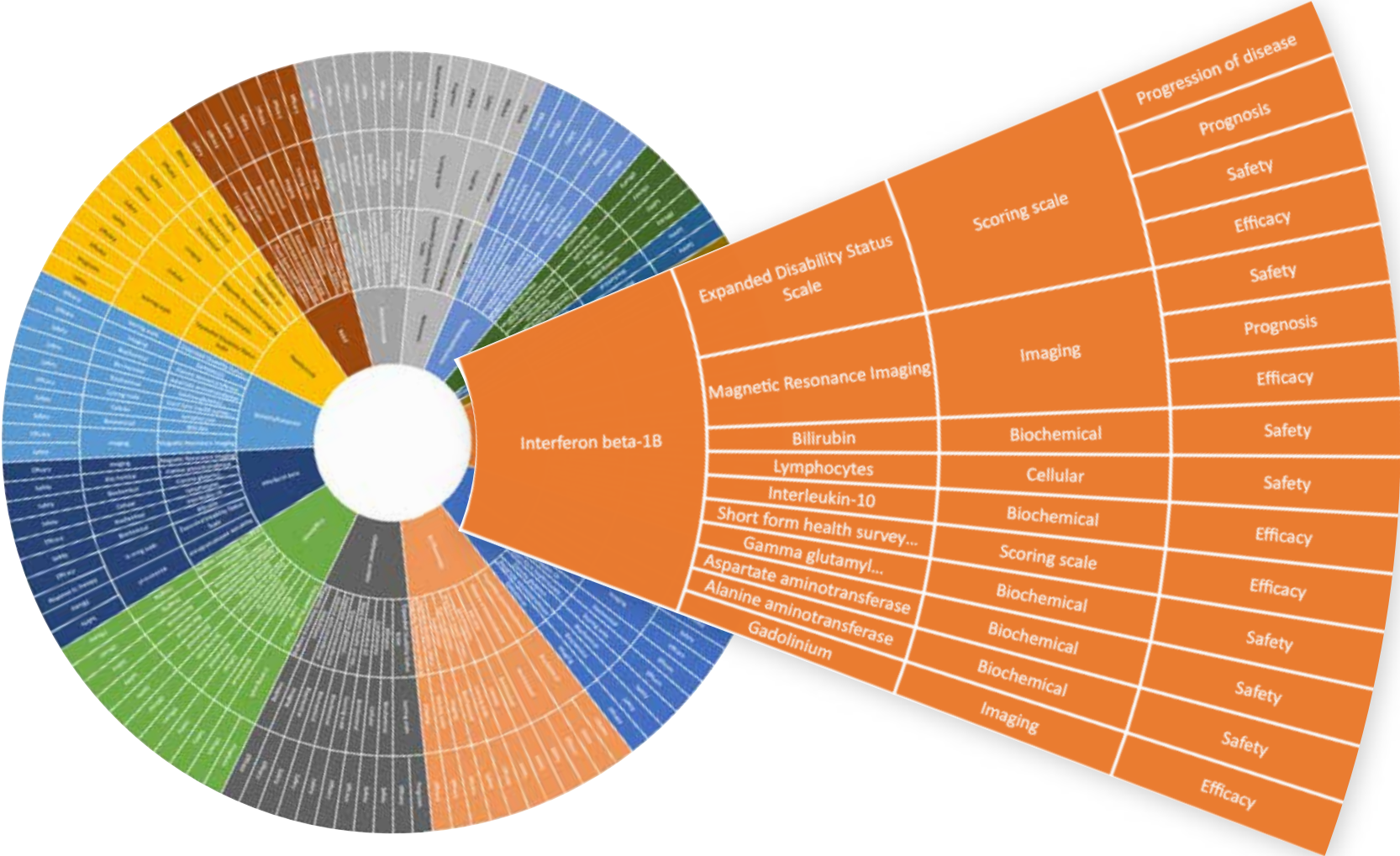
The Excelra Approach

GOBIOM database was queried to identify pharmacodynamic and safety biomarker landscape for commonly administered drugs in MS. The in-house 'bubble chart platform' was used to visualize the pharmacodynamic and safety biomarkers of MS in the GOBIOM database. The commonly administered drugs in MS along with their respective biomarker natures and applications was represented as a sunburst plot.

Figure 1: Pharmacodynamic biomarkers for commonly administered drugs in MS

Figure 2: Safety biomarkers for commonly administered drugs in MS

Legend:
- Interferon beta
- Dimethylfumarate
- Natalizumab
- Rebif
- Alemtuzumab
- Betaseron
- Methylprednisolone
- Mis416
- Delta-9-tetrahydrocannabinol
- Cannabidiol
- Interferon beta-1B
- Interferon beta-1A
- Teriflunomide
- Glatiramer acetate
- Fingolimod

Figure 3: Sunburst plot showing drugs used for treatment of multiple sclerosis, biomarkers that are affected by drug treatment and their nature and applications

Excelra's Contribution

GOBIOM helped identify the most significant pharmacodynamic biomarkers in MS: Expanded disability status scale, MRI, MS functional composite score, MS impact scale-29, Fatigue severity scale, SF-36, MFIS, Beck depression inventory, Nine-hole peg test, MS walking scale-12 and IL-10.

GOBIOM helped identify the most significant safety biomarkers in MS: Alanine aminotransferase, White blood cells, Aspartate aminotransferase, Gamma-glutamyl transferase, Lymphocytes, Alkaline phosphatase, Neutrophils, Creatinine, Platelets and Bilirubin.

For more information, visit https://www.excelra.com/translational/#gobiom