Follow-Up Data from the MIRROR Study: A Dose-Ranging Study of Subcutaneous Ofatumumab in Subjects With Relapsing-Remitting Multiple Sclerosis

**Introduction**

- The role of B cells in the immunemediated pathology of multiple sclerosis (MS) is becoming clearer. B cells have essential functions in regulating inflammation via cytokine production and producing autoantibodies.
- B-cell depletion with rituximab, an anti-CD20 monoclonal antibody, is indicated for the treatment of chronic MS.
- B cells promote the activation and survival of Th17 cells, which are associated with the development and progression of MS.
- Ofatumumab, an anti-CD20 monoclonal antibody, has been approved for the treatment of relapsing-remitting MS (RRMS) in the EU and US.

**Study Objectives**

- To determine the effect of ofatumumab on MRI lesion activity and the inflammatory burden of subjects with RRMS.
- To assess the safety and immunogenicity of subcutaneous (SQ) formulations of ofatumumab.

**Methods**

- **Study Design**: A randomized, double-blind, placebo-controlled, 24-week follow-up study with an individualized follow-up phase.
- **Patients**: Subjects with relapsing-remitting MS who had previously participated in the MIRROR study.
- **Interventions**: Subjects were randomized to placebo or active doses of ofatumumab (3 mg SQ q12w, 30 mg SQ q12w, or 60 mg SQ q4w).
- **Outcomes**: MRI lesion activity, safety, and immunogenicity.

**Results**

- **MRI Lesion Activity**: Ofatumumab significantly reduced the cumulative number of new and enlarging lesions compared to placebo.
- **Safety**: The most common adverse events (AEs) were injection-site events and upper respiratory tract infections.

**Conclusions**

- Ofatumumab significantly reduced MRI lesion activity in subjects with RRMS.
- The study met the primary endpoint, a significant reduction in the cumulative number of new GdE T1 lesions.
- Ofatumumab was well-tolerated, with a low incidence of serious adverse events.

**References**