ATA188: EBV-targeted T-cell Immunotherapy

ATA188

- Investigational drug that targets cells with active EBV infections
- Peripheral blood mononuclear cells harvested from healthy donors to develop T cells targeting EBV-specific antigens
- ATA188 is premanufactured, sorted by HLA types, which are matched to recipients

EBV, Epstein-Barr virus; HLA, human leukocyte antigen.

Pender MP et al. Presented at European Charcots Foundation 28th Annual Meeting, 2020.

ATA188: EMBOLD Phase 1/2 Clinical Trial

EMBOLD: Phase 1/2 Trial of ATA188

Part 1
- Open-label, single arm
- Dose-escalation
  - 2 infusions of ATA188
  - 1-year follow-up period
- Safety and clinical outcome measures

Part 2
- Double-blind, placebo-controlled
- 2-year study
- Crossover design – receive ATA188 one year and placebo the next, or vice versa
- Dose based on recommendation following Part 1
- Clinical, MRI, and safety outcome measures

Open Label Extension
- If completed at least 1 year of Part 1, receive 1 injection of ATA188/year for up to 4 years
- If completed 2 years of Part 2, receive 1 injection of ATA188/year for up to 3 years

Key Inclusion Criteria

- Diagnosis of progressive MS (PPMS or SPMS)
- EDSS score 3.0-7.0 (Part 1) or 3.0-6.5 (Part 2)
- Positive EBV serology
- No relapses within 2 years (Part 2)
- No concurrent DMT and no history of alemtuzumab or ablative stem cell transplant

EBV, Epstein-Barr virus; DMT, disease-modifying therapy; PPMS, primary progressive multiple sclerosis; SPMS, secondary progressive multiple sclerosis.
ClinicalTrials.gov. Accessed January 6, 2023.

ATA188: Preliminary Efficacy Results

Preliminary Results from Open-Label Part of EMBOLD trial (Part 1 and its Extension)	**Disability-related Outcomes**
	9/24 patients achieved SDI (a composite measure)
	Seven of the 9 with SDI: Improvement driven by EDSS (CDI)
	5/5 patients with CDI remaining in extension maintained improvement for up to 25 months (median 23.5 months)

Comparison of MRI Findings in Patients With and Without Disability Improvements	**Subpopulation**	**MRI Endpoint**
	Patients achieving SDI during Part 1	↓ Enlargement of ventricular volume (P = 0.019)
	Patients achieving CDI during Part 1	= No significant differences in any MRI endpoints
	Patients achieving CDI, including OLE	↑ nMTR (a marker for remyelination; P = 0.005) ↓ PBVC atrophy (P = 0.037)

CDI, confirmed disability improvement; EDSS, Expanded Disability Status Scale; MRI, magnetic resonance imaging; nMTR, normalized magnetization transfer ratio; PBVC, percentage brain volume change; SDI, sustained disability improvement.

Noteboom S et al. ECTRIMS 2022 – ePoster. Mult Scler. 2022;28:692-945.