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B0092

Systemic Administration of an Anti-IL-6R Antibody Mitigated Visual Decline in A Murine Model of Experimental Autoimmune Uveitis (EAU)

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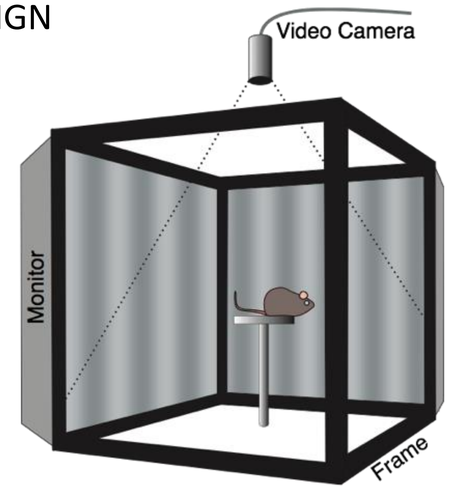
1. INTRODUCTION

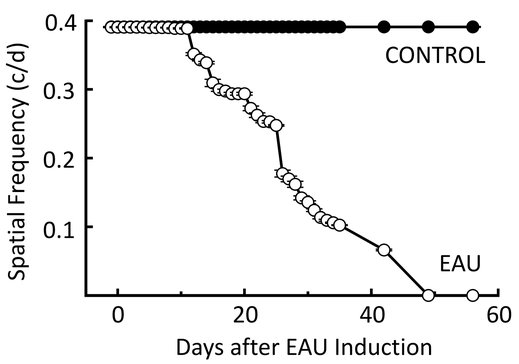
Uveitis is a major source of human disability. Previous studies demonstrated that a murine IL-6R antibody delivered systemically inhibits retinal and choroidal inflammation and reduces vitreal infiltrates in a C57BL/6 mouse model of EAU (Cao et al, IOVS, 2013; E-Abstract 5193). The present study aimed to determine if spatial visual function (spatial frequency and contrast thresholds) declined with experimental autoimmune uveitis (EAU) and if so, to determine if Anti-IL-6R treatment would mitigate the decline.

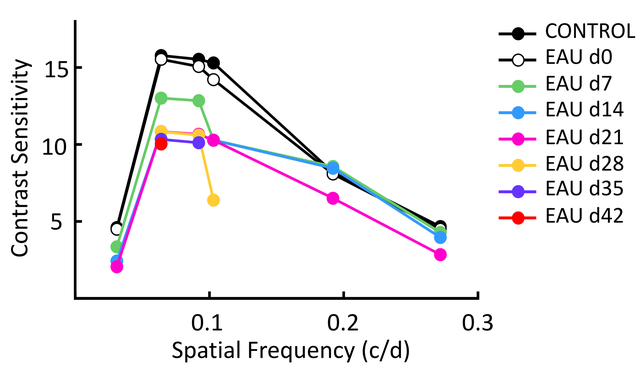
2. EXPERIMENTAL DESIGN

EAU was induced in male C57BL/6 mice (8-10 weeks old) using immunization with human interphotorector retinol-binding protein peptide (New England Peptide), mycobacterium tuberculosis (Difco) in Complete Freund's adjuvant, and pertussis toxin (Sigma). Spatial visual thresholds were measured through both eyes with a virtual optokinetic system (OptoMotry; CerebralMechanics, Inc) and averaged. Animals in EAU groups, were intraperitoneally injected with either an active anti-IL-6R antagonist (anti-mIL-6R, 100mg/kg) or control protein (mFc, 33mg/kg) every 3 days from 5 days after EAU induction.



3. RESULTS - STUDY 1

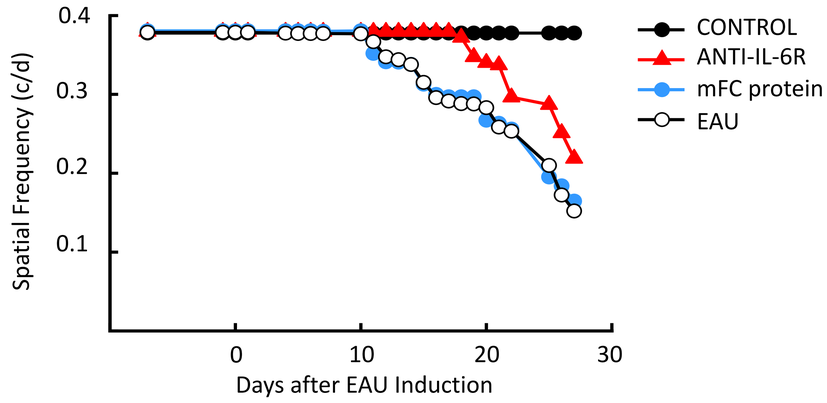


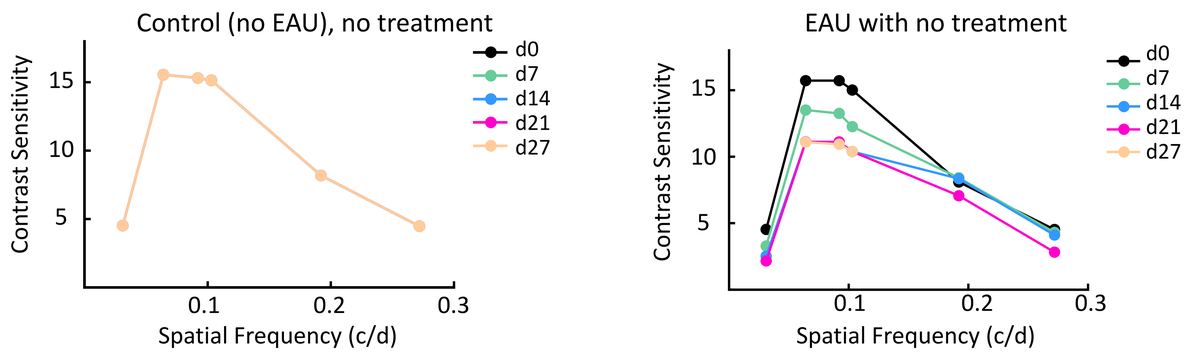


Spatial frequency and contrast thresholds before EAU induction were consistent with published values for normal C57BL/6 mice (Prusky et al, 2004; 2006). Visual decline commenced within two weeks of EAU induction and was ~40% below normal after 4 weeks. No visual decline was measured in non-immunized controls.

3. RESULTS - STUDY 2

Visual decline in Anti-IL-6R antibody treated mice was delayed by ~3 weeks, relative to mFc treated mice.





4. CONCLUSIONS

1) Experimental Autoimmune Uveitis induced in a mouse model leads to visual decline.
2) Visual decline in the EAU mouse model was delayed after systemic administration of an IL-6R antibody.

Disclosures: NMA is an employee of CerebralMechanics, Inc. GTP is a cofounder of CerebralMechanics, Inc. TCM, JC, SJW, GDY and CR are employees of Regeneron Pharmaceuticals, Inc.
Funding: Supported by funds from Regeneron Pharmaceuticals, Inc.