Proteomic Comparison of Vitreous Samples from Diabetic and Control Patients

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Financial Disclosures

- Unrestricted grant from Research to Prevent Blindness

Contributions

- Conception and design of work/ project
- Analysis and interpretation of data
- Creation and/or critical review of the presentation
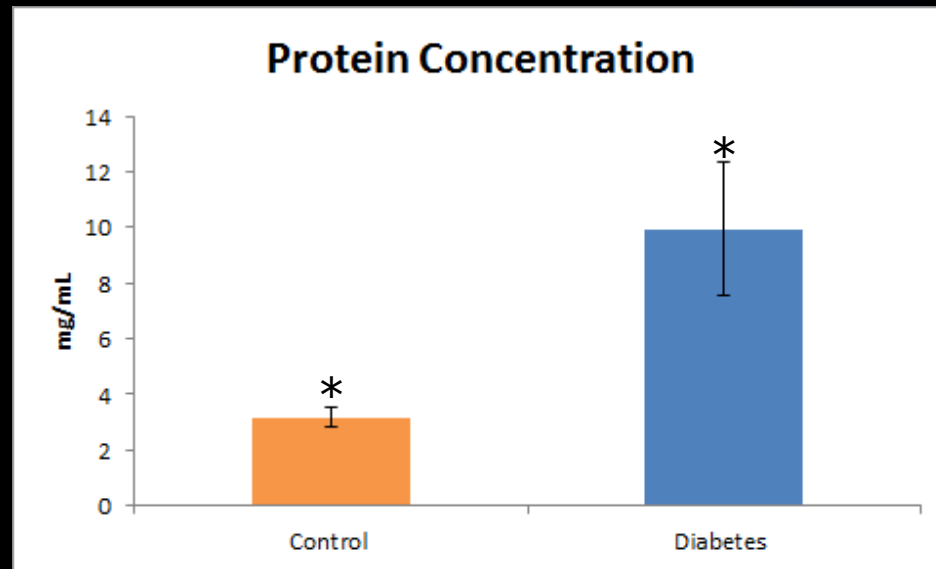
Data Collection and Study Design

- Undiluted vitreous

- Five patients with PDR and TRD
  - PPV/EL/TRD repair

- Three control patients
  - Macular pucker/ ERM
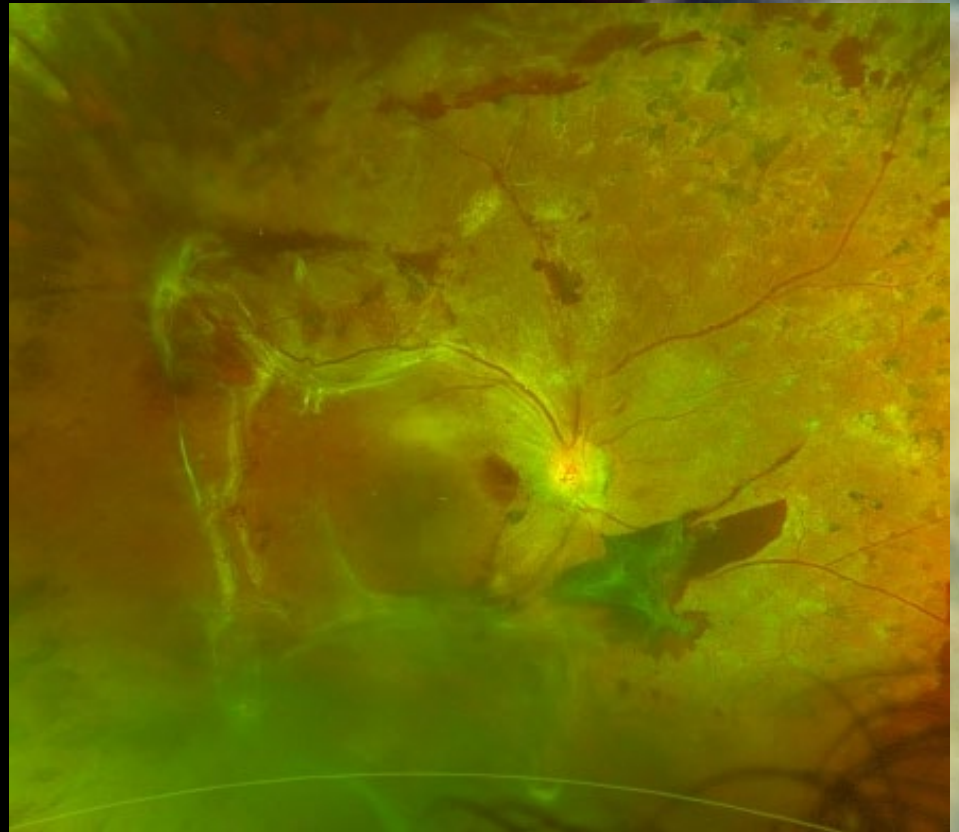
Sample Handling

Results
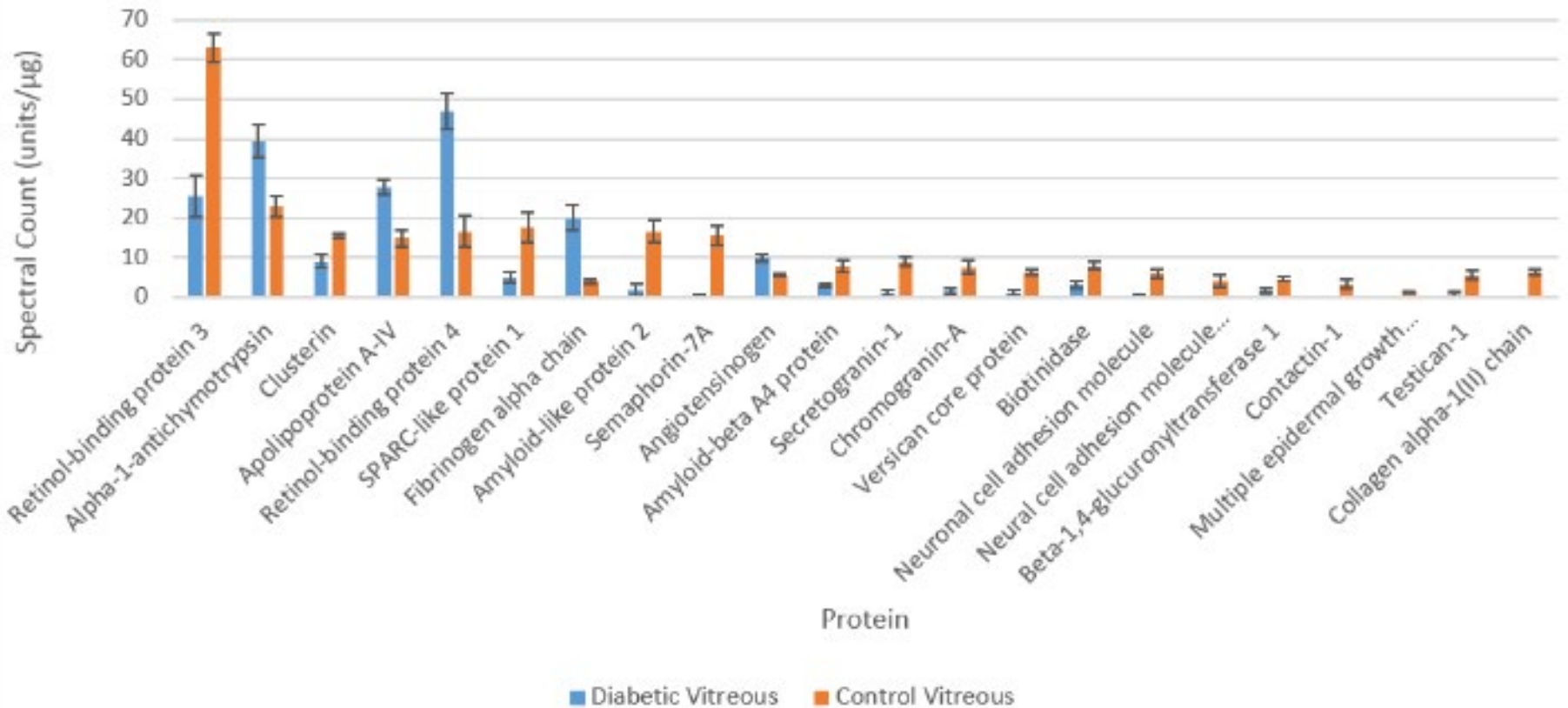

Protein Concentration

P=0.045

- Total protein concentrations found to be different
- Serum albumin and serotransferrin were most common proteins encountered
  - No significant difference between the groups

Significantly Different Proteins

Proteomic Analysis of Diabetic and Control Vitreous

Proteins Elevated in Control	Function
Retinol-binding protein 3	Transport retinoids between RPE and photoreceptor
Clusterin	Clean cell debris, regulate apoptosis, interact with APO
SPARC-like protein 1	Cell adhesion, matrix cellular protein
Amyloid-like protein 2	Glucose, insulin homeostasis, amyloidosis, interact with APOA1 APOE
Semaphorin-7A	T cell, nerve development
Amyloid-beta A4 protein	Amyloid, kinase activation, interact with APOE, plaque in Alzheimer
Secretogranin-1	Neuroendocrine precursor, interact with APOE
Chromogranin-A	Regulate neuroendocrine system, interact with SERPIN, alzheimer
Versican core protein	Cellular matrix
Biotinidase	Process fats, carbohydrates, proteins
Neuronal cell adhesion molecule	CD54 neuron cell adhesion
Neural cell adhesion molecule L1-like protein	Neuron cell adhesion, regeneration
Beta-1,4-glucuronyltransferase 1	Blood group I antigen, axon guidance
Contactin-1	Cell adhesion
Multiple epidermal growth factor-like domains protein 8	Cellular communication
Testican-1	SPARC family, protease, inhibitor of cell attachment
Collagen alpha-1(II) chain	Vitreous collagen, regluated by IL-1b, TGFb1

Proteins Elevated in Diabetes	Function
Alpha-1-antichymotrypsin	Serine protease inhibitor, regulate leukocyte protease release, proinflammatory
Apolipoprotein A-IV	Lipid metabolism
Retinol-binding protein 4	Transports retinol in blood, decreased in Stargardt, may lead to insulin resistance
Fibrinogen alpha chain	Blood clotting
Angiotensinogen	Regulate blood pressure, electrolytes

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