

CD38 and Ceramide-Enriched Membrane Platforms in Bovine Coronary Myocytes

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Background

- Ceramide-enriched microdomains



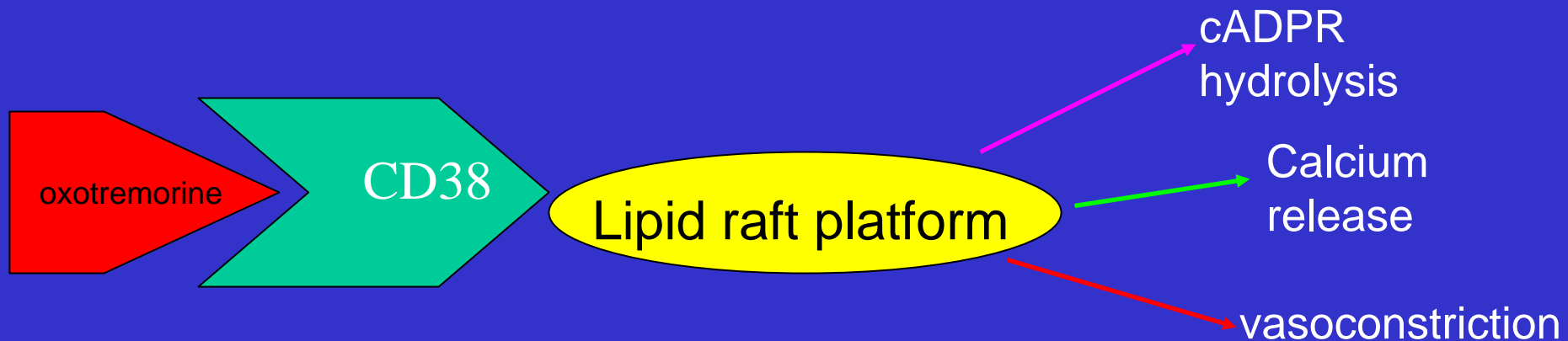
- Oxotremorine

- CD38
- 45 kDa



Hypothesis

- Lipid raft membrane microdomains are involved in oxotremorine-induced CD38 activation in bovine coronary myocytes.



Methods

- DMT Myograph: tension recording studies of fresh bovine myocardial vasculature
- Vasoconstrictor: Oxotremorine (20 uM, 40 uM, 60 uM, 80 uM)
- Drugs: Methyl- β -cyclodextrin (1mM), desipramine (0.1 mM), filipin (1 μ g/mL), nicotinamide (6mM), treated for 15 minutes

Results

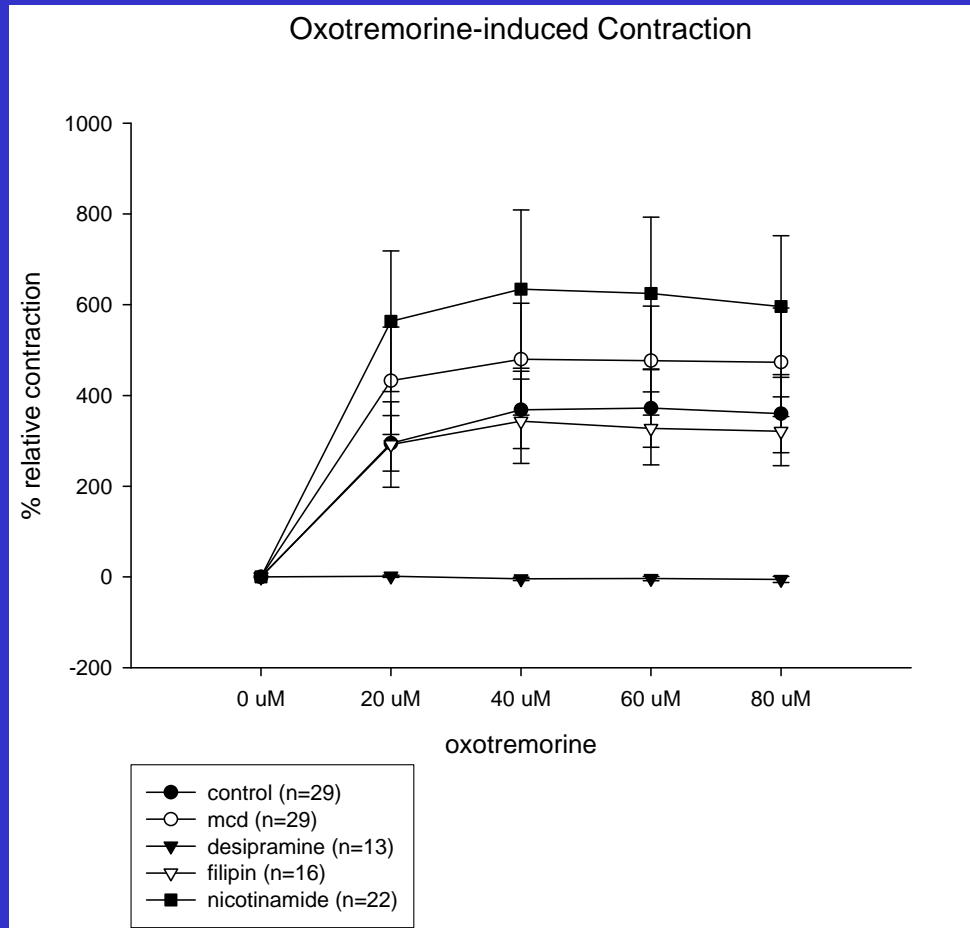
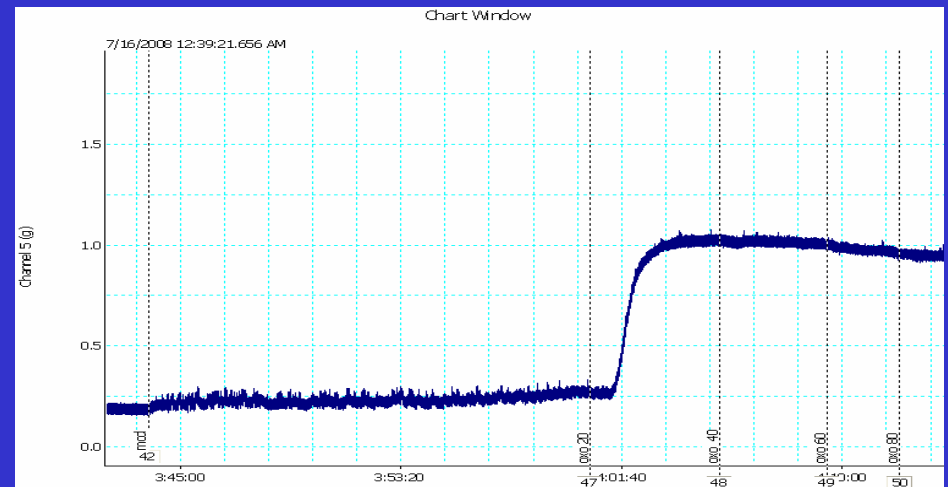
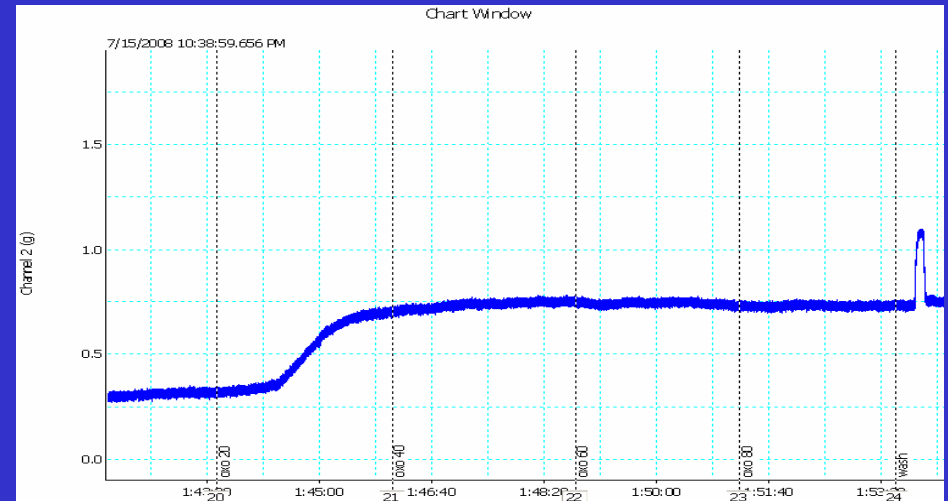
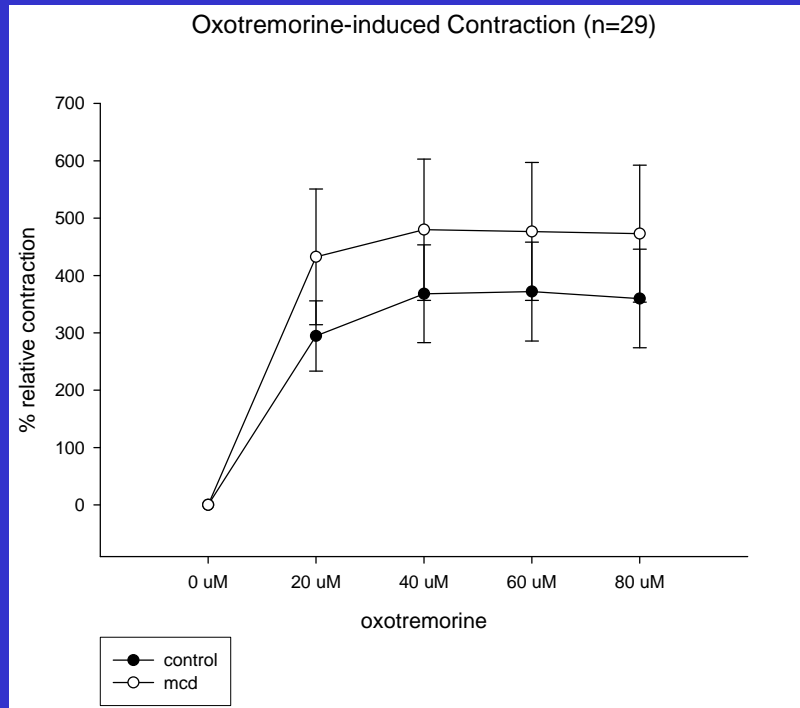


Fig. 1. Effect of LR inhibitors on oxotremorine-induced constriction

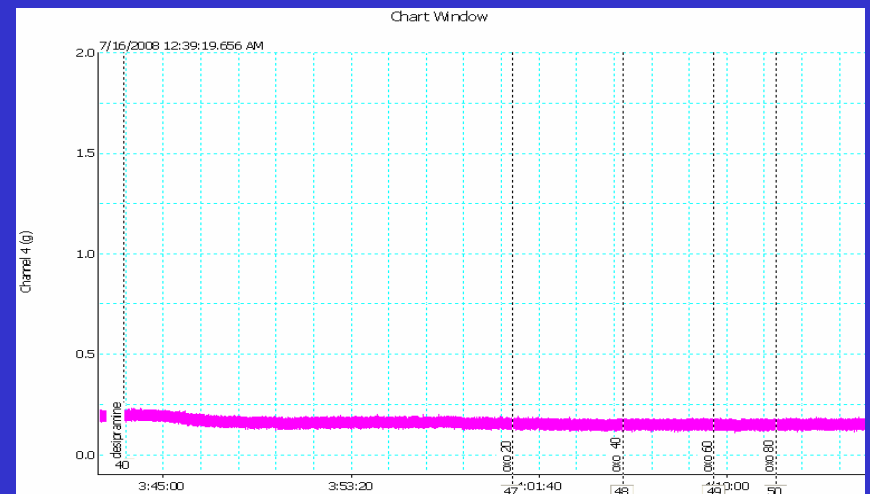
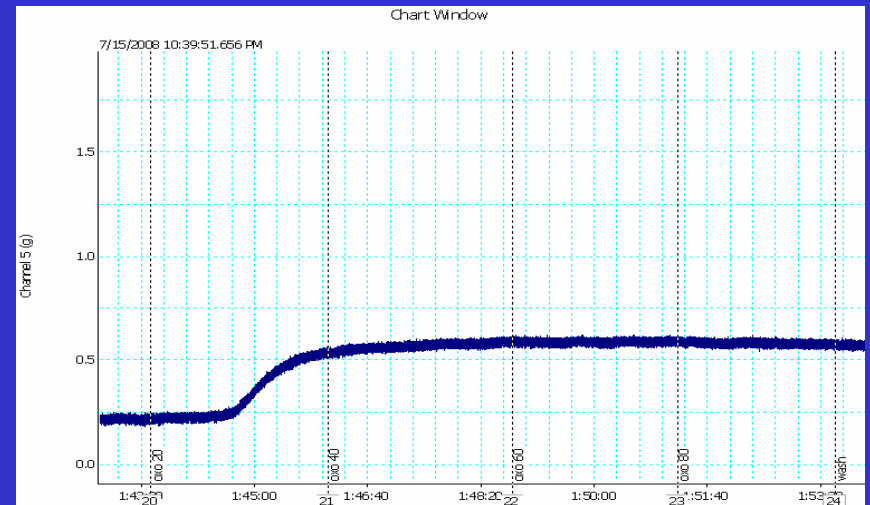
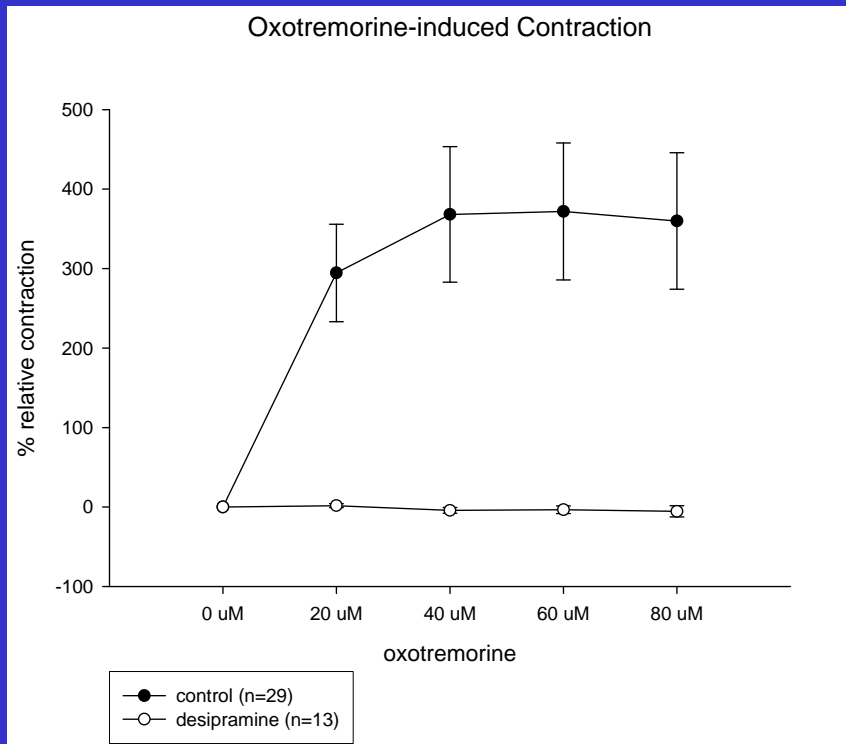
Results

Methyl- β -cyclodextrin vs. Control



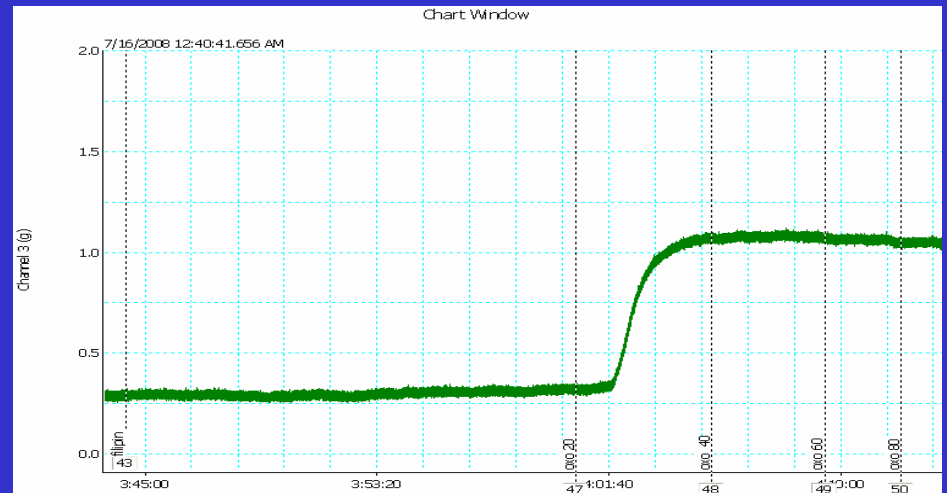
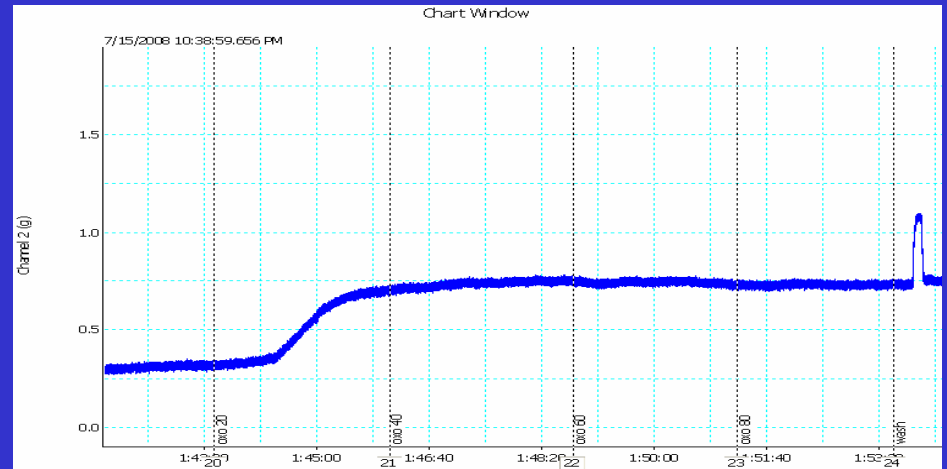
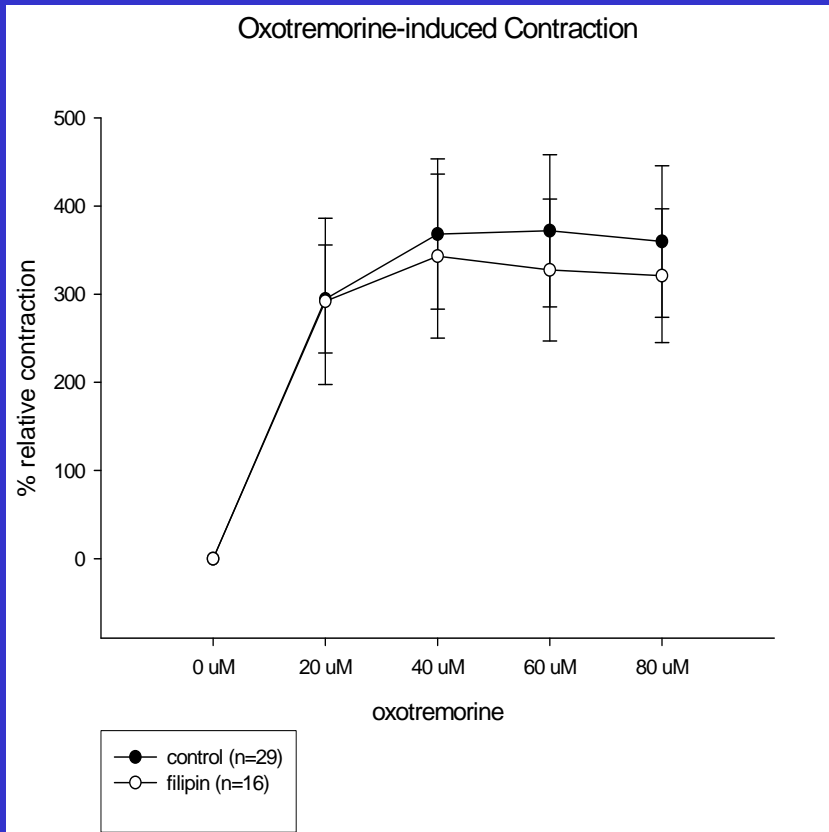
Results

Desipramine vs. Control



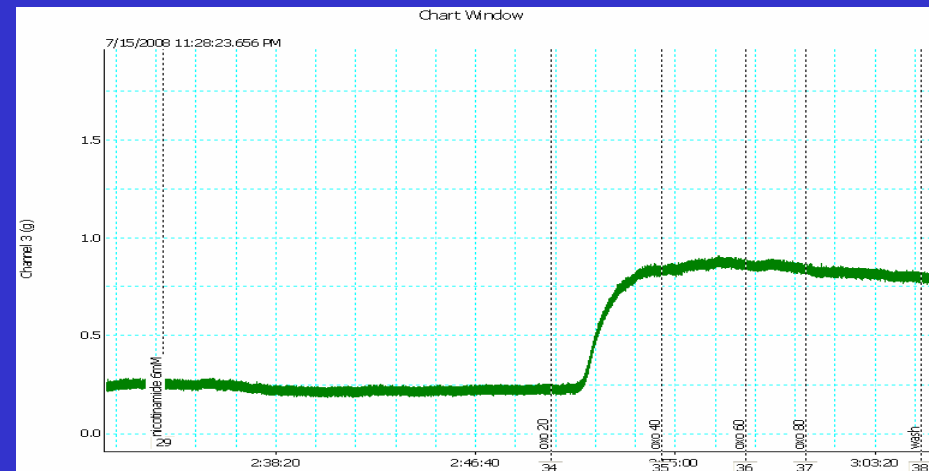
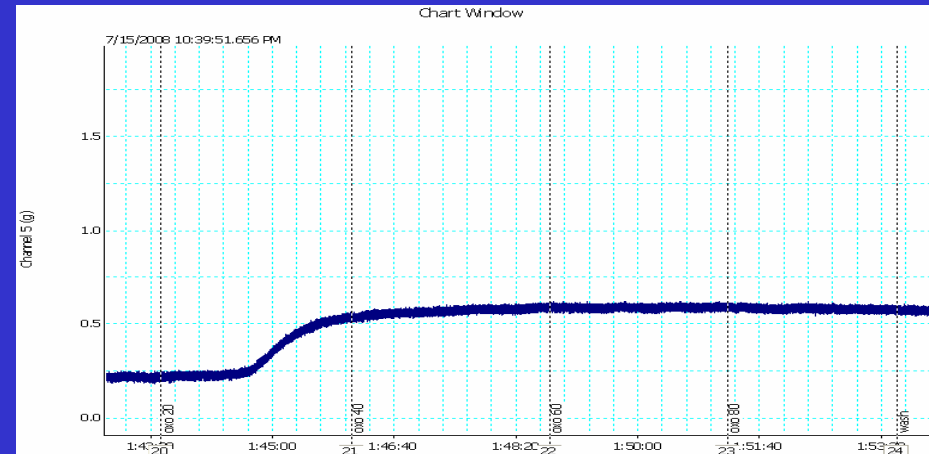
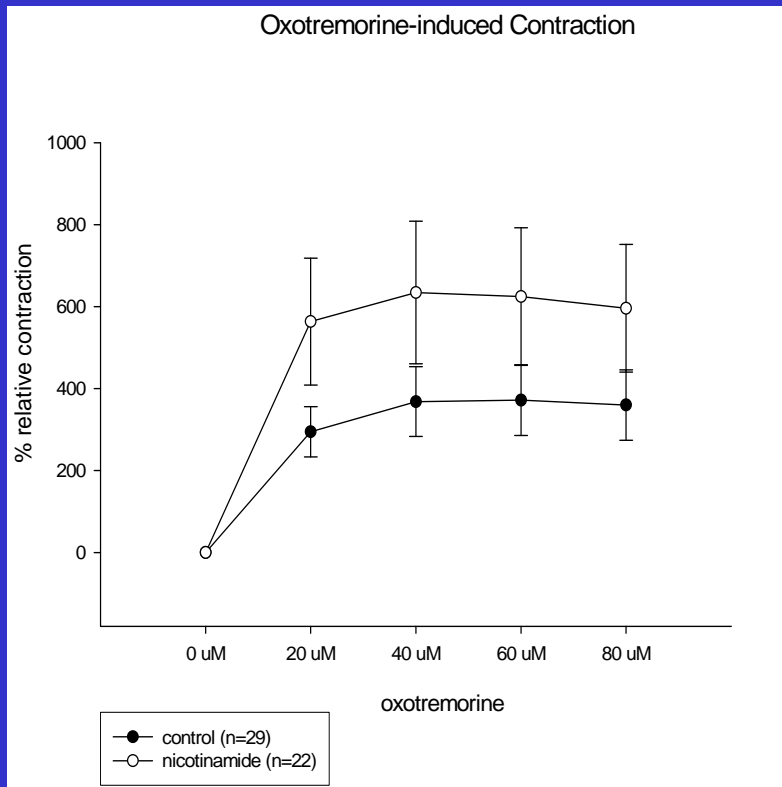
Results

Filipin vs. Control

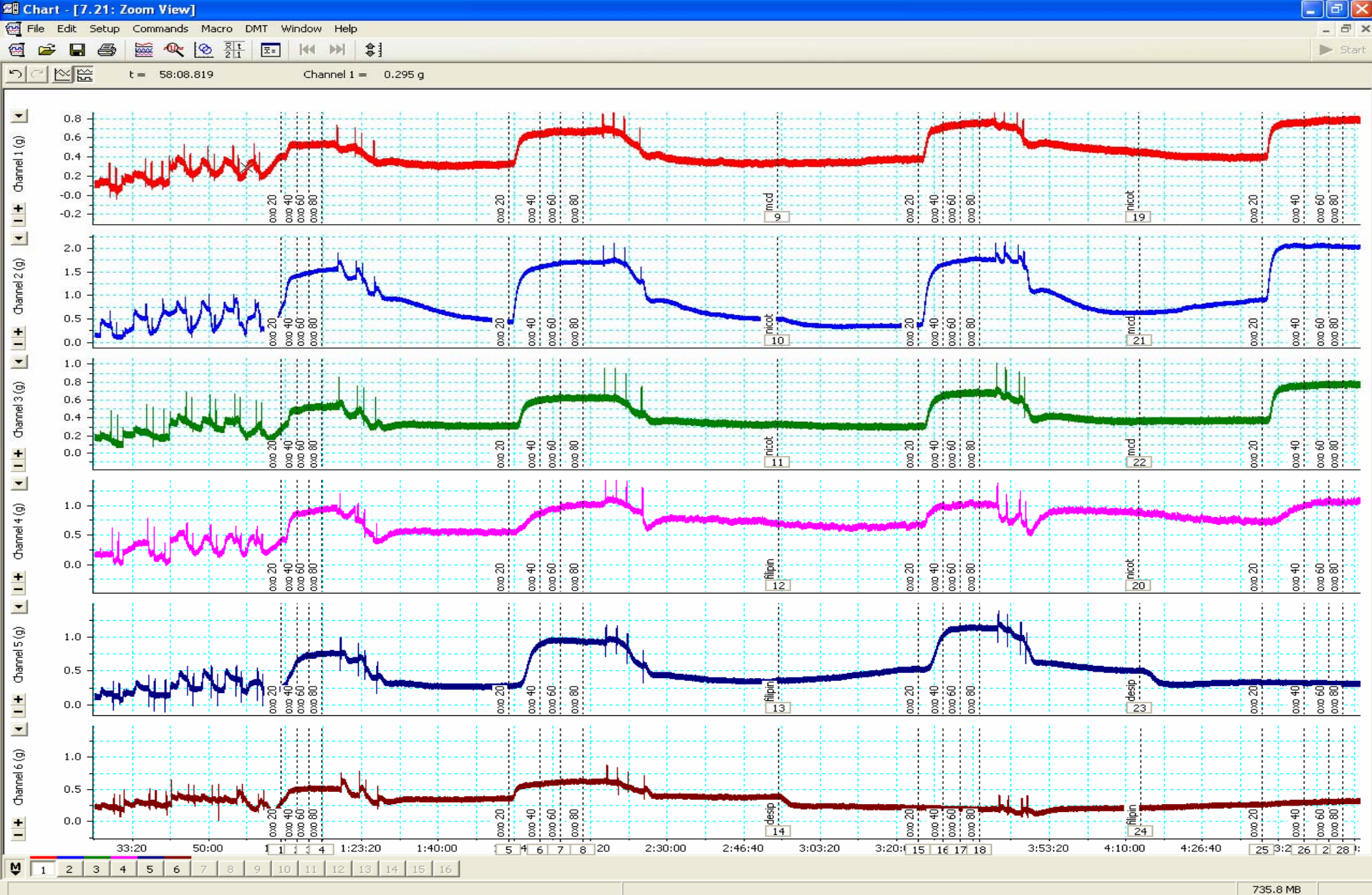


Results

Nicotinamide vs. Control



Results



Discussion

- CD38 as receptor and enzyme
- ASM inhibition
- Role of ceramide in CD38 activation?
- Raft aggregation and oxotremorine stimulation

Questions and Future Directions

- Inhibitor concentrations
- Oxotremorine dosage levels
- Myograph-specific conditions?

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