Four skin treatments will be utilized:
1 dermatitis (D) – stimulated by Q-tip application to the back of the ears of dinitrofluorobenzene (DNFB) in a mixture (vehicle) of olive oil and acetone 3:1).

2 vehicle alone (olive oil and acetone) (V) – a control

3 saline alone (S) – a control for the elovanoids

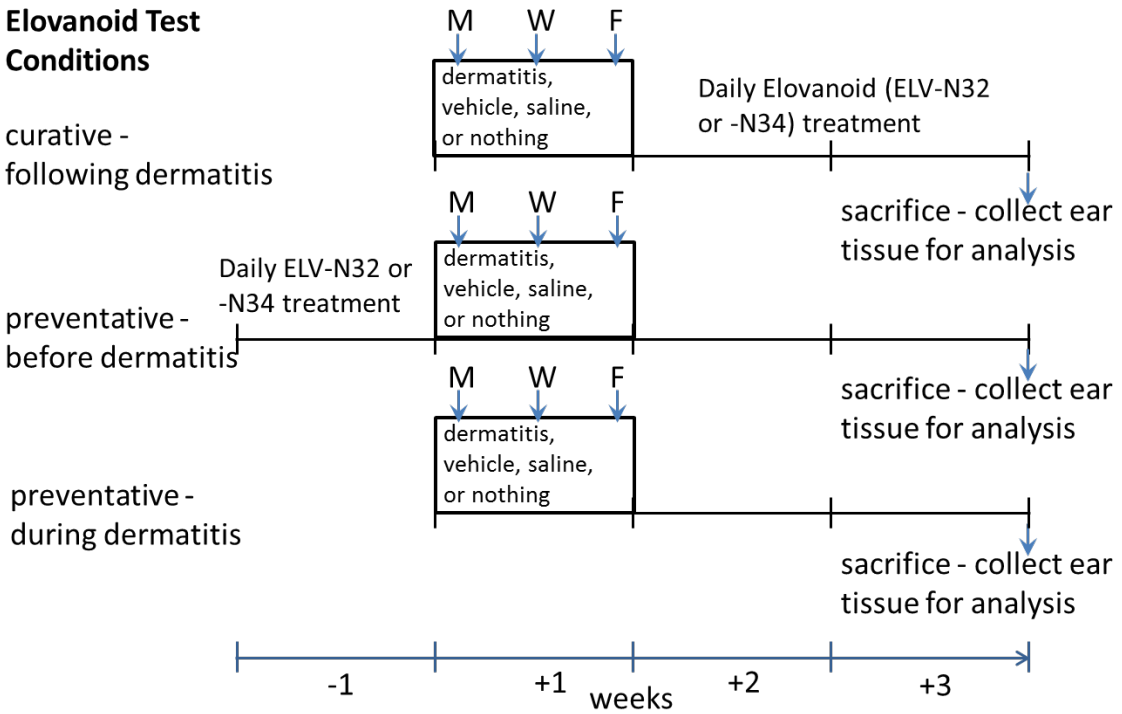
4 no treatment (N) – a control for normal tissue

There are three test conditions (please see diagram below):
curative – following dermatitis
preventative – before dermatitis
preventative – during dermatitis

Each of these test conditions will include stimulation of 22 mice with D, V, S, or N (4x22=88), the application of ELV-N32 or ELV-N34 (2x88=176 mice), and the three test conditions (3x176=528 BalbC mice, total).

Eleven ears are needed for each of four analyses. 22 mice per treatment will produce 44 ears, or 11 ears for each of the 4 procedures.

**Summary diagram:**



1.) Two groups of mice (curative following dermatitis and preventative during dermatitis) will receive stimulation for dermatitis for one week, on Monday, Wednesday, and Friday, once each day) by Q-tip application to the backs of both ears with a mixture of dinitrofluorobenzene (DNFB, [0.15%]) in a mixture of olive oil and acetone (3:1).

2.) Simultaneously, one group (preventative during dermatitis) will receive Q-tip applications of ELV-N32 or ELV-N34 to the backs of the ears once each day (7 days).

3.) The curative following dermatitis group will receive Q-tip applications of ELV-N32 or ELV-N34 to the backs of the ears once each day for the following two weeks.

4.) The third group (preventative before dermatitis) will receive Q-tip applications of ELV-N32 or ELV-N34 to the backs of the ears once each day for the week prior to dermatitis stimulation (7 days).

5.) For each of the three Test Conditions, parallel control experiments will be conducted in which dermatitis stimulation (DNFB) will be replaced with vehicle alone (olive oil/acetone, 3:1), saline alone, or no treatment (naïve).

6.) Mice will be hand held during all applications to the ears.

7.) All applications will occur within the Neuroscience animal care facility within a biosafety cabinet.

8.) Following each application mice will be immediately returned to their cages.

9.) Two weeks after the conclusion of sensitization or control treatment, mice will be anesthetized with ketamine/xylazine and decapitated, and the ears removed for analysis.