



## Colorado Science and Engineering Fair

## 2025 Individual Project Abstract Form

**Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.**

Title of Project: MMP-Deactivating Therapeutic Contact Lenses For Corneal Melting

Finalist's Name: Roa Lee

School and City: Mountain Vista High School in Highlands Ranch (Douglas county)

Sponsor's Name: Heather Riggs

Category: Biomedical & Health Sciences

Division: Senior (grades 9 - 12)

Abstract (250 words or less):

Corneal melting is an eye condition that occurs due to infections, exposure to chemicals, physical trauma, or other reasons that could damage the eye. When the eye gets injured, Matrix Metalloproteinase (MMP) is activated as the eye tries to heal itself. However, when too much MMP activation happens, it can damage the eye, leading to corneal melting and possibly blindness. It is essential to regulate MMP activation by controlling the concentration of zinc ions, which can be achieved by removing them using EDTA, a chelating agent. In this project, the amount of zinc ion is precisely controlled by utilizing EDTA modified hydrogel on contact lenses that can directly applied to eye.

*I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.*

Finalist's Signature:

Date:

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. **A signed copy of this form must be included in your notebook.**