

**2022 USEF - Senior Division**

| <b>Category and Rank</b>  | <b>Name</b>                            | <b>School</b>                                  | <b>Project Title</b>   |
|---|--|--|--|
| Behavioral & Social Sciences - Third Place                        | Susan Arcos-Flores & Nathan Flores     | Salt Lake Center for Science Education         | Latino Disparities In High School's Mental Health Resources and  |
| Biology & Microbiology - First Place                              | Megan Tandar                           | West High                                      | Repressed Autophagy in Aging is Associated with Blood-Brain-Barrier Permeability and Changes in Blood                                      |
| Biology & Microbiology - Second Place                             | Krishnam Goel                          | West High                                      | Microbiology of Virus and Bacterial Interactions with Silver Nanoparticles for Therapeutic Purposes  |
| Biology & Microbiology - Fourth Place                             | Riya Soneji                            | West High                                      | Developing a Phage Library to Identify Potential Coronavirus D-  |
| Chemistry & Biochemistry - First Place                            | Dora Meiwes                            | West High                                      | Investigating the Properties of Paint Binders and Their Applications   |
| Computer Science & Applied Computational                          | Yaniv Taussky                          | West High                                      | Simulating Prey and Predator Evolution   |
| Earth & Environmental Sciences - Second Place                     | Zejun Li                               | West High                                      | Imaging Calcite in Trilobite Lenses Using Confocal Raman Microscopy  |
| Earth & Environmental Sciences - Third Place                      | Hazel Wilde                            | Salt Lake Center for Science Education         | Exploring Golden Eagle Diets Through Isotopes  |
| Energy: Chemical & Physical - Third Place                         | Diego Escobar & Maximillian Therriault | Salt Lake Center for Science Education         | Fast Food Fuel   |
| Mechanical & Materials Engineering - First Place                  | Marianne Liu                           | West High                                      | Employing the DiSCoVeR Machine Learning Algorithm to Discover New Novel High-Performing Superhard  |
| Mechanical & Materials Engineering - Third Place                  | Ellis Chalker & Collin Stanley         | Salt Lake Center for Science Education         | Mechanical Knee Exoskeleton  |
| Medicine, Health Sciences, & Biomedical Engineering - Third Place | Sharayu Senthilkumar                   | West High                                      | The Effect of Sonication Duration on MR-guided focused ultrasound (MRgFUS) Lesion Size and Accuracy  |
| Medicine, Health Sciences, & Biomedical Engineering -             | Brendon Young                          | West High                                      | Exploring the Effects of a Point Mutation in the 5' UTR of APC   |
| Physics, Astronomy & Math - First Place                           | Lukas Mesicek                          | Salt Lake Center for Science Education (SLCSE) | Photorealistic Simulations of General Relativity: Using the Finite Element Method to Solve, Test, and Analyze the Einstein Field Equations |
| Plant Sciences - First Place                                      | Ethan Yrungaray & Isabella DeLagerheim | Salt Lake Center for Science Education (SLCSE) | Saving Our Soil (SOS): Finding a Reliable Base to Create Soil Stability Around the Receding Great Salt Lake                                |

| <b>Regeneron ISEF Grand Champion Winners</b> |              |           |   |
|--|--------------|-----------|---|
| Winner                                       | Marianne Liu | West High | Employing the DiSCoVeR Machine Learning Algorithm to Discover New Novel High-Performing Superhard     |
| Winner                                       | Megan Tandar | West High | Repressed Autophagy in Aging is Associated with Blood-Brain-Barrier Permeability and Changes in Blood |