

Intel Science Talent Search

The Science Talent Search was created to encourage high school seniors who demonstrate exceptional ability in science, math and engineering through individual research projects. Over the years the Science Talent Search has become the most prestigious high school science competition in the country, with broad support of the academic and scientific communities. Educators, scientists, engineers and journalists throughout the U.S. have enthusiastically enabled this annual event. Many STS participants have gone on to distinguished careers; six of these remarkable scientists have won the Nobel Prize.

Science Service is the nonprofit organization which has administered the Science Talent Search since its inception in 1942. The mission of Science Service is to advance the understanding and appreciation of science. In addition to its education programs, Science Service publishes the weekly magazine *Science News*.

2007 Semifinalists

The Semifinalists of the 66th Science Talent Search were chosen from among 1705 entrants representing 487 high schools in 46 states, the District of Columbia, Puerto Rico and five overseas schools. From among the Semifinalists, 40 Finalists will be selected to attend the Science Talent Institute in Washington, D.C. from March 8-13, 2007. During their visit to Washington, the Finalists will present their research to the public, participate in final judging and share in \$530,000 in scholarships.

Each of the 300 students named a Semifinalist in the Intel Science Talent Search will receive a \$1,000 award for their outstanding science research, to be received in April 2007.

Additionally, to recognize excellence in teaching and school support of individual student research, the high schools of Semifinalists will receive an award of \$1,000 for each Semifinalist named in the Intel Science Talent Search. This award is used to further excellence in science, math and engineering education at the recipient school. In the case of home schooling, the awards are given to the affiliated school or school district of the home school. School awards are also distributed in Spring, upon completion by the principal of the School Award Program Application.

Colleges and universities regard the Semifinalist award to be evidence of exceptional scientific promise. Each Semifinalist is provided with a certificate of accomplishment, which may be sent with their applications for college admission and scholarships. A listing in this book, as well as at www.sciserv.org/sts, is also generally accepted as documentation of the honor.

Intel Science Talent Search Finalists will be announced January 31, 2007 and published in the February 3, 2007 edition of *Science News* magazine.

This list of Intel STS Semifinalists is compiled by Science Service, based upon information provided by each student in their entry. If a student's city of residence differs from that of the school, it will be listed also.

ALABAMA

Florence

Shoals Christian School

Everett, Marshall Bradley, 17

Gender Differences in Rationality: If and Why Genders Differ in How Closely They Adhere to the Theory of Rational Behavior

Mountain Brook

Mountain Brook High School

Timberlake, Andrew Thomas, 18, Birmingham

Stroke: An MRI-based Study of Lesion Location and the Effects of Constraint-induced Movement Therapy on the Brain

ALASKA

Fairbanks

Jeannet Home School

Jeannet, Kennan Louisa, 18

Overwintering Physiology of *Cucujus clavipes*: Supercooling, Dehydration, Production of Stress Protein Transcript and Silencing the Expression of Specific Antifreeze Proteins Using RNA Interference

West Valley High School

Daum, Logan Riichi, 17

Atmospheric Model for the Visual Appearance of the Terrestrial and Jovian Planets

ARIZONA

Tempe

Corona del Sol High School

Shi, Veronica Jennie, 17, Chandler

Closing in on Biological Fidelity: A Novel Cellular Automata Approach to Modeling HIV Dynamics and Drug Treatment

CALIFORNIA

Davis

Davis Senior High School

Courtis, Alexandra Maria, 16

Bright Luminescent Silicon Nanoparticles for Biological Applications

Fremont

Mission San Jose High School

Ko, Ryan, 17

Repeated Injection Exposures of Naphthalene Produce Terminal Bronchiolar Clara Cell Tolerance in Female Mice

Ramsundar, Bharath, 16

Analysis of Quantum Computing Interconnection Networks

Fullerton

Troy High School

Li, Charles Huai-Zhi, 17, Chino Hills

Theoretical Mechanisms and Atmospheric Implications of the Reaction of Methyl Vinyl Ether with the Hydroxyl Radical

Wahl, Sean Matthew, 17

Probabilistic One-Dimensional and Spherical Models for the Evolution of Plate Tectonic Systems

- Fullerton** **Troy High School (cont'd)**
Wu, Yueh-Yi, 18
Quantitative Real time Monitoring of Biochemically Active Ensembles of Biological Molecules by Conventional Fluorescent Microscopy
- Irvine** **University High School**
Yu, Wesley Yung-Hsu, 17
Understanding Mechanisms of Transcriptional Regulation: Interactions between Mrj, Histone Deacetylases, and Alkb Family Members
- Los Osos** **Saiki Home School**
Saiki, Samuel, 18
Lower Bounds for Betti Numbers of Polynomial Ring Quotients
- Palo Alto** **Henry M. Gunn High School**
Munshi, Kamran Ashfaq, 16, Los Altos Hills
Technical Paper Speech Synthesis (TPSS)
- Rolling Hills Estates** **Palos Verdes Peninsula High School**
Suh, Carol Yoon Joo, 17, Rancho Palos Verdes
Micro-Pathology Lab Chip for Detecting Molecular Lesions of Glioblastoma
- Tang-Quan, Karis Rachel, 18, Rancho Palos Verdes***
Determining Stroke Core Using CT Perfusion: A Faster, More Cost-effective Modality than MRI
- Woo, Geoffrey Hubert, 18, Rancho Palos Verdes***
Electron Work Function Changes Produced by Deformations and Defects
- Sacramento** **Mira Loma High School**
Wu, Steven Wei, 16, Folsom
Optimizing Quadrupole Ion Trap Geometry by Computer Simulations
- San Diego** **Francis W. Parker School**
Hillman, Aryeh Benjamin, 18
Activity-based Proteomic Profiling of Lysophosphatidic Acid-treated Cancer Cells
- Patrick Henry High School**
Silverstein, Sarah Tamar, 17
A Longitudinal Study of Stress in First-year Dental Students
- Torrey Pines High School**
Zhang, Joanne Yula, 17
Effects of MMP-carrying Inflammatory Leukocytes on Tumor Cell Intravasation
- San Francisco** **Olympia Institute**
Liu, Jiyang, 18
This Requires Action, To Unify IUPAC Periodic Table and Nomenclature
- San Jose** **Oak Grove High School**
Daly, Terik, 17
Chemical Aspects of the Impact Process
- Presentation High School**
Raman, Daya, 17, Morgan Hill
Bioprospecting for Effective Mosquito Larvicides and Adulticides

San Jose

The Harker School

Creasman, Adam Michael, 17, Monte Sereno

Characterization of siRNA Microparticle Formation and Encapsulation Using Supercritical Fluids

Dey, Arkajit, 17, Palo Alto

Tree-Realizability of a Distance Matrix

Wang, Carolyn Lu, 17

The Orientation of Polydiacetylene Ethanolamine Monolayers

Thousand Oaks

La Reina High School

Llanes, Christina Kathryn, 17

Determining the Number of Hidden Units in a Neural Network that Optimizes Its Pattern Recognition Performance

COLORADO

Boulder

Fairview High School

MacGregor, Meredith Ann, 17

Cracking the Brazil Nut Effect

Colorado Springs

William J. Palmer High School

Qiu, Diana Yuan, 17

Liquid Crystal Alignment by Ion-etching and Ferroelectric Suspension

CONNECTICUT

Greenwich

Convent of the Sacred Heart

Samant, Ayesha, 17

A Potential Breakthrough in Treating Depression: The Impact of Structure and Pore Size on the Controlled Release of Fluorescein Isothionate from Poly (ethylene co-vinyl-acetate) Matrices

Ridgefield

Ridgefield High School

Cai, Sophie, 16

A Novel Technique for Revealing Serial and Parallel Mechanisms in Visual Processing

Westport

Staples High School

Lubin, Miles, 17

A Novel Heuristic Search Method Using Inferential Statistics

DELAWARE

Wilmington

The Charter School of Wilmington

Naik, Tejal Ulhas, 17, Hockessin

Identification of a Gene That Blocks Breast Cancer Cell Invasion

DISTRICT OF COLUMBIA

Washington

Sidwell Friends School

Landes, Arjun Vyas, 17

Solar Radiation Force on GPS Satellites: Off-Nominal Attitude Effects on Orbit Perturbations

FLORIDA

Altamonte Springs

Lake Brantley High School

Burlingame, Kaitlin Elizabeth, 17, Longwood

Entry of Plasmid-encoded Toxin into the Eukaryotic Cell

Fort Pierce

Lincoln Park Academy

Bhalla, Sheena, 17, Port Saint Lucie

Discovery of Compounds Active Against *Staphylococcus aureus* from the Marine Sponge Choristida

Ft. Lauderdale

Pine Crest School

Alvarez, Francisco Nicolás, 17, Weston

Identification and Characterization of the Dihydroisoquinolines, a Novel Family of Anti-metastatic Agents

Miami

Dr. Michael M. Krop Senior High School

Landman, Bryan Nathan, 18

A Java-based Genetic Algorithm Stock Screening Program for Maximizing Return on Investment: Show Me the Money

Wong, Nina Oiyen, 17

Insulin-regulated Intracellular Trafficking mRNAs in Skeletal Muscle Cells

Panama City

Rutherford High School

Finklea, James, 17

A Comparison of Methods of Pollination in the Monohybrid Cross of *Brassica rapa*

Plantation

American Heritage School

Nasirullah, Hasib Fahin, 17, Cooper City

Two Models for the At-line Process Control of Tablet Moisture Content Using Near-IR Spectroscopy in Pharmaceutical Manufacturing

Tampa

Chamberlain High School

Parrish, Robert Michael, 17

The Development of Localized Finite Differencing Computational Fluid Dynamics Applications To Predict Aeronautical Performance

Vero Beach

Saint Edward's School

Makhni, Sonya, 17, Fort Pierce

Predator Behavior of *Corethrella appendiculata*

Winter Springs

Winter Springs High School

Hsu, Jeremy Lutan, 17

Cell Growth in Hostile Environments: An *in vitro* Simulation of *in vivo* Acid-Base Conditions

GEORGIA

College Park

Woodward Academy

Simmons, Christopher Arnold, 17, Atlanta

The Synchronization of Metronomes

Marietta

Wheeler High School

Tiao, Janice, 18

ADAM9 Expression in Human Prostate Cancer Cells: Cell Motility and Evasion of Oxidative-induced Apoptosis

IDAHO

Idaho Falls

Skyline High School

Herring, Marie Kyoko, 17

The Dynamics of Supercooled Liquids with Variations of Volume and Temperature

ILLINOIS

Aurora

Illinois Mathematics & Science Academy

Chen, Chaoran Rachel, 18, Westmont

Analysis of Polybrominated Diphenyl Ethers in Human Placenta Tissue

Dittmer, Susan Juel, 17, St. Charles

Using a Dimuon Analysis to Search for Supersymmetry at CDF Fermilab

Vidula, Mahesh Krishna, 16, Naperville

The Role of a Common Polymorphism of the Prion Protein in the Propagation of Prions

Xu, Nora, 17, Naperville

Modeling of X-ray Scattering for Nanocrystal Superlattice Multilayer Thin Films

Zhu, Lilly Yi, 18, Burr Ridge

Effect of Iron on Pyocyanin Regulation in *Pseudomonas aeruginosa*

Elmhurst

York Community High School

Maduram, Amy, 17

The Shape of Force: Organizing Cell Forces To Achieve a Unified Tissue Response on Micropatterned Surfaces

INDIANA

Evansville

Francis J. Reitz High School

Uduehi, Esther Oluchukwu, 17

Raman Spectroscopy for Quantitation and Identification of Compounds and Substances

Fort Wayne

R. Nelson Snider High School

Bell, Jonathan Brooks, 18

Design, Development and Application of a Computer-controlled Acoustically Driven Portable Biaxial Shaker Table System

Kouts

Kouts High School

Loza, Julie, 17

Can Light Be Used To Detect Blood Glucose Levels *in vivo*?

Saint John

Lake Central High School

Jagadeesan, Nhila, 17, Schererville

The Antimicrobial Properties of *Curcuma longa* and Its Growth Impediment Effects on *Saccharomyces cerevisiae* and *Escherichia coli*

Terre Haute

Terre Haute South Vigo High School

Sperry, Ethan Douglas, 17

A Molecular Analysis of Genetic Variation within a Controlled Population of White-tailed Deer

Zhao, Emily Wenjie, 17

Understanding the Relationship of Protein Essentiality in Protein Interaction Networks

KANSAS

Overland Park

Blue Valley Northwest High School

Chen, Robert Elmer, 17

Computational Modeling and Analysis of the Effects of Retinal Disease on the Formation of Response Feature Maps in the Primary Visual Cortex

Shawnee Mission

Shawnee Mission South High School

Jiang, Boling Xia, 17, Overland Park

Rhizosphere *Pseudomonas* Bacteria as Biocontrol Agents for Phytopathogenic Fungi Suppression

KENTUCKY

Louisville

Ballard High School

Driskell, Amanda Lynn, 17

BDNF Regulates Taste Bud Development at Late Embryonic Ages

duPont Manual Magnet High School

Cai, Yi, 18

Targeting TRAF Proteins as an Anti-tumor Strategy

J. M. Atherton High School

Wu, Yin Yin, 17

The Mechanics of Proton Transport in One-dimensional Water Chains

LOUISIANA

Shreveport

Caddo Parish Magnet High School

Huang, Huang, 18

Curcumin Inhibits $\alpha6\beta4$ Integrin-dependent Breast Carcinoma Cell Motility

MARYLAND

Annapolis

Broadneck High School

Thomas, Danna Elisabeth, 17

Cell Survival, Genomic Instability, and Bystander Effects Induced by Ionizing Radiation

Baltimore

Baltimore Polytechnic Institute

Call, Emma, 18

Self-assembling Three-dimensional Microcontainers for Cell Encapsulation

Bethesda

Bethesda-Chevy Chase High School

Parker, Beatrice Smith, 17, Chevy Chase

Conditioned Place Preference Testing Reveals a Role for Mind Bomb in the Establishment of Long-term Memory in Zebrafish

- Bethesda** **Walt Whitman High School**
Chen, David Chen, 17
 A Five Residue Amino Acid Sequence Predicts Sodium Hydrogen Exchanger Membrane Localization
- Frederick** **Frederick High School**
Kamata, Tetsutaro Theodore, 17
 TLE1: A Novel Protein Interactor for EphrinB1
- Glenelg** **Glenelg High School**
Vechery, Afton Kerry, 17, Woodbine
 Contamination of Proximate Wells in the Piedmont Region
- Greenbelt** **Eleanor Roosevelt High School**
Li, Dayan, 17, Laurel
 Thrombospondin-1 Switches Nitric Oxide Function from Inhibitory to Stimulatory for Gene Expression of Human Tumor Endothelial Markers
- Middletown** **Middletown High School**
Remsberg, Jarrett Renn, 17
 Structural Analogs of the Second Intracellular Loop of Smoothed as Potent Inhibitors of Hedgehog Pathway
- Rockville** **Thomas Sprigg Wootton High School**
Sheng, David, 18
 Amyloid- β Peptides Impair Axonal Mitochondria Transport: A Possible Early Pathophysiological Mechanism in Alzheimer's Disease
- Silver Spring** **Montgomery Blair High School**
Davis, Joseph Samuel, 18, Gaithersburg
 Anti-apoptotic Proteins CED-9 and Bcl-x_L Directly Disassemble Ceramide Channels
- Deng, Merlyn, 17, Bethesda*
 Host Factors BAT1 and DDX39 Are Responsible for Nuclear KSHV-ORF57 Viral RNA Exporting into the Cytoplasm
- Durnford, Andrew Thomas, 17, Gaithersburg*
 Microstructure-Property Simulations for Low Thermal Expansion Ceramic Composites
- Lan, Cyril, 17, Germantown*
 Modeling the Dynamics of Excitons in Semiconductor Quantum Dot Arrays
- Lawrence, Brian Robert, 17, Kensington*
 Finite Groups with $p^2 - 1$ Elements of Order p
- Lee, Rachel Han, 17, Gaithersburg*
 Effect of Plasma Membrane Compositions on Akt Function
- McCutchen, Richard Matthew, 17, Rockville*
 Least-Unpopularity-Factor Matching
- Mendhiratta, Neil, 17, Darnestown*
 Improving Automated Patient Monitoring with Real Time Heart Rate Variability Analysis

Silver Spring

Montgomery Blair High School (cont'd)

Schaler, Ethan Weber, 17

Lunar South Pole Magnetic Field Analysis: Models from Lunar Prospector Observations and Constraints on Hydrogen and Water Ice Deposits

Yanovski, Joshua Michael, 18, Rockville

Approximating Graph Isomorphism

Yao, Victoria, 17

The Identification of Chromatin Domains Interacting with the Hox Gene Clusters by a Novel Genome-wide Approach

Zhang, Allen, 17, Potomac

Micromanipulation of Living Cells Using Novel Fiber Optic Tweezers

Towson

Notre Dame Preparatory School

Cyganowski, Anna, 17, Baldwin

Nickel Cadmium Batteries: A Medium for the Study of Metal Whiskers and Dendrites

MASSACHUSETTS

Andover

Phillips Academy

Cao, Gary Guangwei, 17, Cohoes, New York

Resveratrol: A Natural Cyclooxygenase Inhibitor Induces Head and Neck Cancer Cell Arrest through Activation of p53 and Inhibition of PGE₂ Production

Arlington

Arlington Catholic High School

Boltik, Jacqueline Marie, 17, Cambridge

The Effects of the Removal of the Eyestalks or Addition of 20-Hydroxyecdysone Following Multiple Limb Autotomy in Sand Fiddler Crabs, *Uca pugilator*

Boston

The Winsor School

Flier, Lydia, 17, Newton

The Akt and Vitamin D Receptor Signaling Pathways in Prostate Cancer

Greenberg, Rachel Segal, 17, Brookline

Interactions Between Tcf-4 and Olig 2 in Motoneurons

Falmouth

Falmouth Academy

Mann, Benjamin Jacob, 18

Carbon Uptake Dynamics in the Marine Diatom *Thalassiosira*

Holden

Wachusett Regional High School

DeCiero, Daniel Joseph, 17

The Efficacy of Amantadine in Ameliorating Alzheimer's Disease Deficits in *Drosophila melanogaster*

Lexington

Lexington High School

Ramamurti, Arjun Ravi, 17

Exploring the Guenon Mystery: An Evolutionary Analysis Using Phylogenetic Trees

MICHIGAN

Beverly Hills

Detroit Country Day School

Grewal, Amardeep Singh, 17, West Bloomfield

An Extra Spin on Nerve Regeneration Scaffolds: Synthesis of an Electrospun Spinal Cord Nerve Conduit

Mikkilineni, Sohan Venkat, 17, Bloomfield Hills

A Finiteness Property for Integral Points in a Family of Conics

Perni, Subha, 17, West Bloomfield

Analysis of the Impact of Cryopreservation on T-Cell Function by Flow Cytometry

Midland

Herbert Henry Dow High School

Patel, Niral Mukund, 17

The Hydrothermal Synthesis of Inorganic/Organic Coordination Polymers Incorporating 4,4'-Dipyridylamine

Troy

Athens High School

Avrutsky, Maria, 17

Effects of LED Radiation on Respiration Rate in Germinating Peas

Troy High School

He, Temple Mu, 17

Period Analysis of Cataclysmic Variable X10 and Its Implications on the Origin of Low States

Liu, Siyuan, 17

FGF2 and Chronic Stress Alter Exon-specific Expression of FGFR2 and FGFR3 in Frontal Cortex

MINNESOTA

Minneapolis

Breck School

Creasey, Kaitlyn Marie, 17, Plymouth

Tachinid Fly (*Lespesia archippivora*) Parasitism of Monarch Larvae (*Danaus plexippus*)

Lew, Brandon Timothy, 18, Plymouth

Characterization of Anthocyanins in Purple Pods of *Phaseolus vulgaris* cv. Blauhilde

New Prague

New Prague High School

Turner, Carl Anthony, 17

Designing an Optical Sensor to Assess High Pressure Sodium Lamp Condition through Spectral Analysis

St. Paul

St. Paul Academy & Summit School

Zheng, Daniel, 17, Shoreview

Genomic Identification of the Germ-Line Origin of Human Birth Defects: A Simulation Study

MISSISSIPPI

Jackson

Jackson Preparatory School

Beck, Samuel Walker, 18

A Simulator for the Motion of Charged Bodies

MISSOURI

Columbia

David H. Hickman High School

Lin, Evan Ryan, 17

Detection of Apoptosis by Speckle Imaging

Srinath, Meghna, 17

Biocompatible Silver Nanoparticles for Potential Tumor Imaging Applications

NEBRASKA

Nebraska City

Lourdes Central Catholic High School

Arkfeld, Emily Katherine, 17, Dunbar

The Interaction between Known Pork Quality Traits and the Shelf Life Stability of Berkshire Pork

NEVADA

Las Vegas

Advanced Technologies Academy

Lambert, Chalette Maurine, 16

Heat Shock Protein 27 Inhibits the Denaturation of Cytochrome C Bound to Gold Nanoparticles

NEW HAMPSHIRE

Exeter

Phillips Exeter Academy

Hon, Keone David, 17, Kamuela, Hawaii

Remodeling of E-cadherin Junctions by N-glycosylation

Lee, Gongmyung, 17

Improving the Differential Evolution Algorithm: A New Approach to Global Optimization

Mannan, Aristotle, 17, Kalamazoo, Michigan

Dual Oxidase 2: A New Weapon in the War on Worms

NEW JERSEY

Hackensack

Academy for the Advancement of Science & Technology

Drucker, Caroline Beth, 17, Fair Lawn

The Cardinality of the Set of Nilpotent n -by- n Matrices Over the Finite Field of Order q : An Original Enumeration

Hotz, George, 17, Glen Rock

I Want a Holodeck

Iselin

John F. Kennedy Memorial High School

Toth, Laura, 17

Mutants Upstream in the Insulin-like Signaling Pathway Increase the Susceptibility of *Caenorhabditis elegans* to the Pathogen *Alcaligenes faecalis*

Lawrenceville

The Lawrenceville School

Bhatt, Anjali Malavika, 16, Princeton

Experimental Study of Semiconductor-based Negative Refractive Index Materials

Lincroft**High Technology High School*****Handlin, Daniel Adam, 17***

GEONET: A Demonstration of Networked Optical Satellite Tracking with Applications to Science, Engineering and National Security

Srinivas, Raja Ram, 17, Howell

Analysis of Magnetic Drug Targeting in the Human Vascular System Using Implanted Magnetic Elements

Madison**Madison High School*****Blewett, Megan Marie, 17***

Discovering Candidate Ligands of Neuregulin-1 Isoform SMDF Using Small-Molecule Microarray Analysis

Millburn**Millburn High School*****Blumenthal, Alex Michael, 17, Short Hills***

Theoretical Modeling of an Inertial Electrostatic Confinement Fusion Device

Monmouth Junction**South Brunswick High School*****Deshpande, Neha, 17***

A Structure-Function Analysis of Subito and Related Kinesin-like Proteins in Meiosis

Princeton**Princeton High School*****Xu, Denise Jiali, 17, Cranbury***

Designing Microporous Metal Organic Frameworks (MMOFs) for On-board Hydrogen Storage

NEW MEXICO**Las Cruces****Las Cruces High School*****Hshieh, Alan Sien-Wei, 17***

CYSTHSdawn: Developing Software that Utilizes Imaging Algorithms for the Analysis of Cancer Metastases

NEW YORK**Armonk****Byram Hills High School*****Bahnken, Ashley Ann, 17***

Birth Order Effect on Primary Friendship Selection

Cawkwell, Philip Benjamin, 17, Bedford

Examining the Roles of Vascular Endothelial Growth Factor B (VEGF-B) and its Receptor, Vascular Endothelial Growth Factor Receptor 1 (VEGFR1) in Angiogenesis

Granata, John Anthony, 17

Improving the Speed and Accuracy of Character Prediction of the P300 Speller Brain-Computer Interface through a Novel Leaps and Bounds Algorithm and New Intensification Boundaries

Mark, Daniel, 17

Simulating an Extraterrestrial Effort to Search for Earth Utilizing Doppler Spectroscopy

Bellmore**John F. Kennedy High School*****Forman, Jamie Erica, 17***The Effect of Food Brand Labeling and Awareness on Intake at an *ad libitum* Test Meal in Lean and Overweight Children

Bellmore

John F. Kennedy High School (cont'd)

Krimmer, Ali Charly, 17

Age-dependent Changes in Neurogenesis in the Adult Brain

Peters, Scott Michael, 17, Merrick

Analysis of the *Arabidopsis* FUSED Ortholog: Is it Required for Cell Division?

Saltzman, Allison Jill, 17, Merrick

Crosstalk between Interferon γ (IFN- γ), Tumor Necrosis Factor- α (TNF- α) and Adenosine A2A Receptors

Samplin, Erin, 18, Merrick

Dysbindin (DTNBP1) Haplotype, Family History of Psychiatric Illness and Lifetime Severity of Negative Psychotic Symptoms in Patients with Schizophrenia

Tannenbaum, Brian Mitchell, 17, Merrick

Mimicking the Heterozygous State of BRCA2 Carriers in HT-29 Colon Cells

Briarcliff Manor

Briarcliff High School

Nevendorf, Lauren Elizabeth, 17

Stress Levels in Captive North American River Otters (*Lontra canadensis*) Dependent upon the Frequency of Behavioral Enrichment

Bronx

The Bronx High School of Science

Berger, Michael Joseph, 17, Hollis Hills

The Efficacy of Selected Biofeedback Techniques in Mitigating Symptoms Associated with Autism Spectrum Disorder

Chen, Jenny Xun, 17, Kew Garden Hills

Role of Tumor Suppressor Gene PTEN in Chromosomal Stability

Hersh bain, Marni, 17, Forest Hills

Potential of *N. pachyderma* in Reconstructing Past Surface Water Conditions

Kvetnaya, Natalya, 17

Effect of Taxotere Treatment on Heat Shock Protein 90 (Hsp90), ErbB2, Raf-1, Akt and Erk in Breast Cancer Cells

Rasul, Mahbub, 18, Middle Village

The Effect of U.S. Macroeconomic Reports on the Volatility of Unlinked Foreign Exchange Rates

Shao, Bing Lin, 18, Brooklyn

Development of Salivary Glands in *Drosophila melanogaster* as a Model for Understanding the Formation of Tubular Structures

Brooklyn

Brooklyn Technical High School

Tauqeer, Zujaja, 17

The Effects of Protein Kinase X Knockdown on Fetal Mouse Kidneys and Endothelial Cells

Edward R. Murrow High School

Mannapov, Ildar, 17

Simple Model of Negative Refractive Index Metamaterials

- Brooklyn** **Midwood High School**
Fried, Amanda, 17
 Analysis of Locus of Control of High School Students Based on Academic Performance
- Burnt Hills** **Burnt Hills-Ballston Lake High School**
Allocco, Elizabeth Rose, 17, Ballston Lake
 The Neurocircuitry of Self-Recognition
- Carmel** **Carmel High School**
Goverman, Hannah Cole, 17, Stormville
 Roots of the Community: Phytolith Analysis to Determine Agricultural Practices at an African American Site in the Rural North
- Cedarhurst** **Hebrew Academy of the Five Towns & Rockaway**
Katz, Daniel Scott, 18, Lawrence
 Platinum Nanoparticles: From Hydrogen Storage to Cancer Treatment
- Lawrence High School**
Benvin, Nicole Marie, 17
 The Effects of Musical Training: The Extent to Which Advanced Musical Training Enhances Performance in Musical and Spatial Stroop Tasks
- Feinsot, Stacy Gail, 17, North Woodmere*
 Synthesis and Characterization of Innate Immunity Inhibitors
- Klein, Michael, 17, Atlantic Beach*
 Hypnopaedia: A Study of the Ability to Learn While Sleeping
- Rosen, Marisa, 17, Atlantic Beach*
 Does "It" Really Matter? The Impact of Pronoun Use on Reading Comprehension and Perceived Passage Quality with an Adolescent Population
- Tonetti, Lauren, 17, Atlantic Beach*
 Life After 3 P.M.: The Impact of School Activities on Academic Performance and Self Esteem in Adolescents
- Wagner, Erin, 17, North Woodmere*
 "I Think, Therefore I Am *Not*" Gender Expectations, Aptitude and Mathematical Performance Among High School Students
- Chappaqua** **Horace Greeley High School**
Iyer, Srikanth, 17, Mount Kisco
 The Effects of Moisture on the Optical and Electrical Properties of Low-k Dielectrics
- Mistry, Kavita, 17, Mount Kisco*
 The Effect of Intracellular Calcium Level Fluctuations on the Cleavage of Polycystin-1
- Cortlandt Manor** **Walter Panas High School**
Baskind, Matthew Jordan, 17
 "Who's That in the Mirror?" A Comparison of the Behavioral Responses of *Octopus rubescens* to a Mirror and a Conspecific
- Croton-on-Hudson** **Croton-Harmon High School**
Kaufman, Rebecca Lynn, 17
 Androgen Modulation of Cognitive Functions Relevant to Schizophrenia in Rats

Croton-on-Hudson	<p><u>Croton-Harmon High School (cont'd)</u> <i>Sitts, Rachel Ellen, 17</i> Do Bumblebees Make Foraging Decisions Based on Those of Others?</p>
Dewitt	<p><u>Jamesville-Dewitt High School</u> <i>Basu, Siddhartha, 17, Syracuse</i> Numerical Simulations of Capillary Force-driven Interactions Among Floating Particles</p>
Dix Hills	<p><u>Half Hollow Hills High School West</u> <i>McDonough, Alexandra, 17</i> Teacher Perception of Student Drug and Alcohol Use and Their Ramifications</p>
East Setauket	<p><u>Ward Melville High School</u> <i>Kirsch, Sarah, 17, Setauket</i> Gender Differences in Hypersensitivity Behavior in a Rat Model of Autism</p> <p><i>Lin, Hillary, 17, Stony Brook</i> Sex Differences in Brain Activation During the Viewing of Facial Affect</p> <p><i>Yu, Rui Hui, 16, Stony Brook</i> Development of Molecular Single-Electron Device Components: Synthesis of Acetylide (Bisocyanide) Rhenium Complex as a Corner of a Molecule Cage</p> <p><i>Yu, Rui Zhi, 16, Stony Brook</i> On the Brink of Chaos: Study of Fermi-Pasta-Ulam Effects in 2D</p>
Fairport	<p><u>Fairport High School</u> <i>Wang, Rui, 17</i> Computational Modeling of Spectral Properties of Nickel Dithiolene Dyes</p>
Farmingdale	<p><u>Farmingdale High School</u> <i>Feiner, Sean Michael, 18</i> Not So Tasty: Synthesis and Crystallization of Heteroleptic Cerium Sandwich Porphyrinate</p>
Farmingville	<p><u>Sachem High School East</u> <i>Palmaccio, Samantha, 17</i> Longitudinal Evaluation of <i>in vitro</i> Osteoblast Biomineralization and Differentiation Using Alkaline Phosphatase Quantification and Confocal Scanning Laser Microscopy</p>
Flushing	<p><u>Townsend Harris High School</u> <i>Wazed, Bushra, 17, Jamaica</i> The Effect of Resistance to Imidacloprid on the Immunocompetence of <i>Leptinotarsa decemlineata</i></p>
Fresh Meadows	<p><u>St. Francis Preparatory School</u> <i>Pickel, James Christopher, 17, Hollis Hills</i> The Genetics of Gender Determination: A Study of Novel Genes</p>
Garden City	<p><u>Garden City High School</u> <i>Rohatgi, Abhinav, 17</i> The MTBE Fuel Additive Induces Mortality in Marine Life Through Nitric Oxide Signaling</p>
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