Frontiers in Education Technology
Vol. 6, No.2, 2023
www.scholink.org/ojs/index.php/fet
ISSN 2576-1846 (Print) ISSN 2576-1854 (Online)

Original Paper

Nationally Recognized Open Door Model

Steven Oppenheimer[1]

[1] Department of Biology and Center for Cancer and Developmental Biology, California State University, Northridge, CA, USA

Received: March 11, 2023 Accepted: March 27, 2023 Online Published: April 12, 2023

doi:10.22158/fet.v6n2p62 URL: http://dx.doi.org/10.22158/fet.v6n2p62

Abstract

The White House brochure during a US Presidential Award ceremony stated of Oppenheimer: "He has developed an open door model that encourages students of all economic strata and ethnic groups to participate in his research."

The national recognition noted in the title of this paper included:

1) *a US Presidential Award for science research mentoring, a White House program administered by the National Science Foundation. The White House brochure said that Oppenheimer's philosophy was that all interested students should be given the opportunity to do research.*

Research should not be reserved for the elite.

2) *election as a Fellow of the American Association for the advancement of science (AAAS). A Fellow of the AAAS is defined as a Member whose efforts on behalf of the advancement of science or its application are scientifically or socially distinguished. Specifically of Oppenheimer as a AAAS Fellow it noted for studies on cell surface carbohydrates in morphogenesis and malignancy. And also for award winning programs that bring advances in science to the student*
3) *statewide Trustees Outstanding Professor Award of the 500,000 student California State University system (largest public university system in the United States). Two of about 20,000 faculty are selected for this highest system wide award each year.*

These honors resulted from an open door student research program, student career outcomes, student co-authored publications and 14 textbooks/textbook editions. Most of all Oppenheimer's enthusiasm, energy and humor were instrumental in this success. This program is replicable for those with the energy, enthusiasm and motivation to work with many research students. This paper will explore all the components of this program (Note 1-94).

1. Introduction

Most professors work with small numbers of students because their research systems don't lend themselves to a lab with large numbers of students. This is because of safety issues and a high degree of complexity. And most faculty are not motivated to serve many research students.

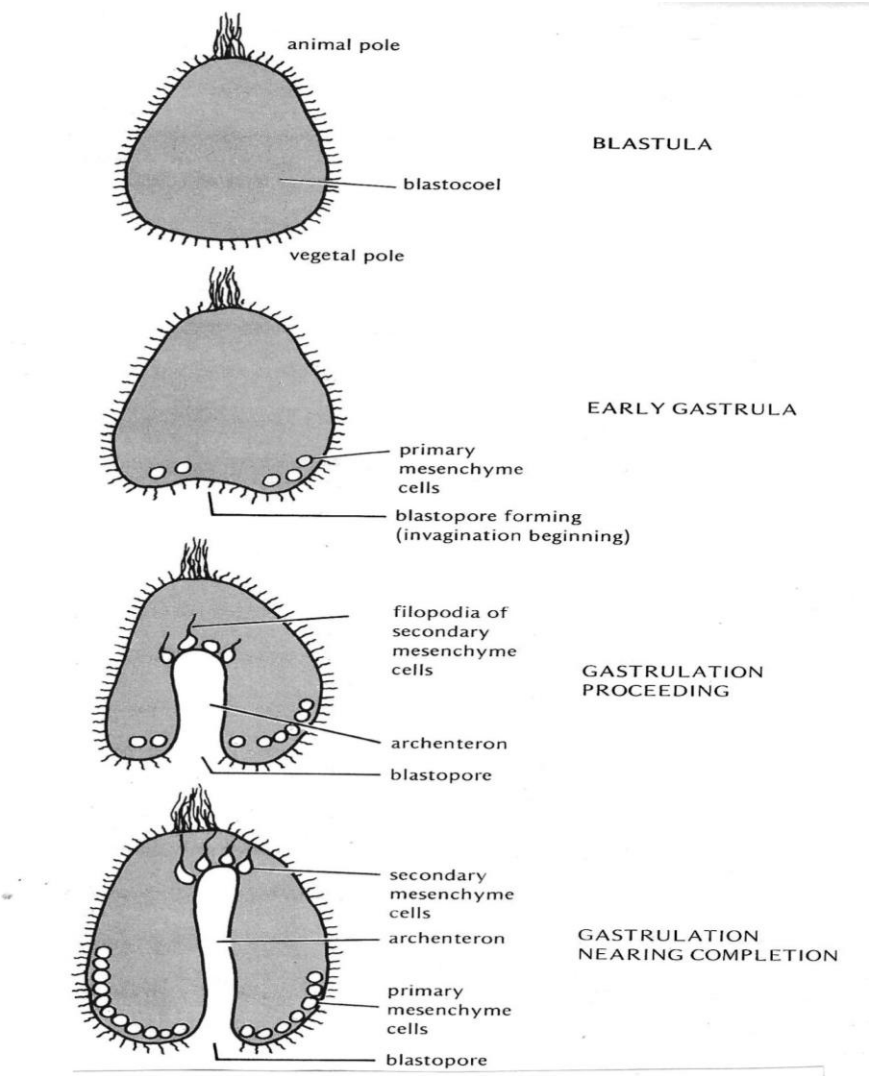
In the Presidential Award review one reviewer said…He (Oppenheimer) calls his students doctors or professors…I think (the reviewer) I'll try that. Oppenheimer's philosophy is that all interested students should be given an opportunity to do research (Note 91).

2. The Experimental Systems

We work with the sea urchin embryo and mouse teratocarcinoma cells. Let's first look at the sea urchin embryo system that provided the research that played a key role in the awards and honors noted. Why is the sea urchin such a good system to work with? It has been cited as a model system by the National Institutes of Health. It is easy to work with by hundreds of students and therefore is a key component of the open door policy.

Over a 50 year period at Cal State Northridge, we developed a marine aquarium lab that housed hundreds of sea urchins in refrigerated aquaria. One can even maintain sea urchins in a refrigerated aquarium in an old refrigerator and there are many ways to do it. We are able to keep fertile sea urchins all year because different species are "ripe" with gametes during each season of the year. It is not only the sea urchins that attract many students to the Oppenheimer lab. It is enthusiasm, energy and motivation to serve many students at one time. As all awarding organizations noted, it is Oppenheimer's enthusiasm, motivation and energy that is responsible for this record of accomplishment. But without an easy to use system with simple experiments, the numbers of participating students would be less.

The figure shows the sea urchin embryo system and the main components of this system that we work with for half a century. The figure shows the hollow ball stage (blastula) as it begins to change form (gastrulates). As can be seen the primary mesenchyme cells move into the hollow ball center (blastocoel) as the embryo begins to invaginate. Cells at the inner tip of the invagination (archenteron) form projections called filopodia that attach to the roof of the blastocoel. This attachment is a focus of our award-winning program that started over 50 years ago. Other systems will be described later.



Sea Urchin Embryo. From Oppenheimer, S., Introduction to Embryonic Development Allyn and Bacon, 1980, Boston, p. 86. After Gustafson

3. The Research

The election as Fellow of the AAAS, cited Oppenheimer's research findings on involvement of carbohydrates in development and cancer as well as his work with students as reasons for this honor.

It all began with the mentoring by Saul Roseman, a giant in carbohydrate biochemistry, at Johns Hopkins, during Oppenheimer's graduate student days (1968-1970). He found Oppenheimer's initial findings, that only one component (L-glutamine) of a complex medium (medium 199), caused mouse teratocarcinoma cells to adhere to each other, to be exciting. Many experiments showed that glutamine donated an amino group to fructose-6-phosphate forming glucosamine-6-phosphate, the key intermediate in the synthesis of cell surface sugar-containing molecules (Note 88).

After leaving Johns Hopkins with a Ph.D. degree, Oppenheimer did an American Cancer Society Postdoctoral Fellowship at University of California, San Diego, with Tom Humpreys and found that the

solution bathing the mouse teratocarcinoma cells contained a component that caused the cells to adhere (Note 87).

4. Open Door Program

Coming to Cal State Northridge in 1971, we continued the work on the teratocarcinoma cell adhesion component with many students participating in the research (Note 90).

This component had functional carbohydrate in its adhesion promoting activity (Note 81). We found that the enzyme that synthesizes L-glutamine (glutamine synthetase) was associated with increased adhesiveness of the teratocarcinoma cells in culture (Note 79). When protease inhibitors were added to the cancer cells their behavioral properties improved (Note 65). Proteases help cancer cells invade other tissues We found that the mouse teratocarcinoma cells were not the only cells that included functional adhesion-promoting carbohydrate. Chick embryo cells also did (Note 84).

With hundreds of students participating in the research, we examined the role of sugars in the binding of cells at the tip of the sea urchin embryo archenteron to the blastocoel roof as shown in the figure. Specifically, L-rhamnose, polyglucans, hyalin, cyclodextrin, mannose-containing molecules, all involved with carbohydrates, appeared to be involved in adhesive interactions in the sea urchin embryo (Notes 31, 34, 35, 66, 72, 48). An examination of the titles of the papers in the notes listing will show which sugars were studied and which students were involved in the studies. Purified glycosidases (carbohydrate degrading enzymes) inhibited the adhesion of the archenteron tip to the blastocoel roof (Note 21) and sugar-binding lectins bound to the cellular interaction under study.

One of our most interesting findings was that large molecules could enter the sea urchin blastocoel without microinjection (Note 39, Note 52) allowing easy probing of cellular interactions (Note 39, Note 52). Two papers, one in SCIENCE and one in NATURE examined carbohydrate-containing lectin receptors on the surfaces of sea urchin embryo cells, showing that the two top journals in the world had interest in the sea urchin embryo and cell surface carbohydrate- containing molecules. About 100 students were involved in this sea urchin research (Notes 1-94).

Perhaps important in the award of the mentioned honors is that this research was simple and often consisted in the addition of purified reagents to developing sea urchin embryos. This attracted many students. To maintain a large open door program both enough space and help from more advanced students are essential. The Department of Biology helped with the space and the enrollments of large numbers of students who get credit for doing research. And Oppenheimer is provided with teaching credit for handling many research students. Such arrangements can only be done on an individual basis. But I have learned that departments pay attention to results. Large numbers of student co-authorships help a department realize how resources should be allocated. Advanced students help train new students so many more students can be served.

The books Oppenheimer wrote or in a couple of cases co-authored, that may have helped in the statewide Trustees Outstanding Professor Award included:
4 editions of Introduction to Embryonic Development plus an instructors' manual and an Italian Edition, 4 editions of Cancer a Biological and Clinical Introduction, Cancer Prevention Guidebook, Atlas of Embryonic Development. And 25 annual editions of the New Journal of Student Research abstracts possibly helped in honors from the State of California, and AAAS, showing the K-12 involvement of my work (Note 2).

5. Acknowledgements

Thanks to Carolyn Oppenheimer for outstanding formatting work and thanks to my colleagues and the CSUN leadership for over 50 years of support.

6. Conclusions

This open door program garnered 2 national honors (AAAS Fellow and US Presidential Award) and a statewide honor (Trustees Outstanding Professor Award of the CSU system). Here I review some of the student co-authored publications, student career outcomes and the qualities of the experimental systems used, in a program based on the philosophy that all interested students should be offered a chance to get involved in research. Research is not just for the elite. Simple experimental systems with easy to manipulate procedures are presented to help attract students. But as stated in the White House brochure, the key to success is the motivation, enthusiasm and boundless energy of Oppenheimer. This program is replicable by those whose primary goal is to open up their laboratories to all interested students.
These are some of the mostly student co-authored publications that may have helped lead to the AAAS Fellow designation, U.S. Presidential Award and CSU system statewide Outstanding Professor Award.

Notes

Note 1. S. Oppenheimer, M. Berman, H. Chun, A. Lundgren, S. Tanaka, A Antoniou, T. Miller, G. Zem, Applied Science Research for All Part 1 Pre-College Level, American Journal of Applied Scientific Research, 6: 72-75 (2020). Doi: 10.11648/j.ajasr.20200606.11.

Note 2. S. Oppenheimer, ed., New Journal of Student Research Abstracts, 27 annual volumes, http://scholarworks.csun.edu/handle/10211.3/125029, 1995-2022.

Note 3. S.Oppenheimer, Covid-19 Pandemic, Glycobiology, Glycan Shields, Vaccine Strategies, Heparin Sulfate: A Mini Review, American Journal of Applied Scientific Research 6(2): 46-48 (2020).

Note 4. S.Oppenheimer, Cell Clusters in Cancer Metastasis: A Mini Review, American Journal of Applied Scientific Research 6(2): 43-45 (2020). Doi: 10.11648//j.ajasr.20200602.13.

Note 5. Smith, T., Oppenheimer, S.B., Involvement of L-rhamnose in Sea Urchin Gastrulation: A Live Embryo Assay, Zygote, doi:10.1017/S0967199413000452 (2013)

Note 6. Singh, S., Karabidian, E., Kandel, A., Metzenberg, S., Carroll, Jr.E., Oppenheimer, S.B., A Role for Polyglucans in a Model Sea Urchin Embryo Cellular Interaction, Zygote doi:10.1017/S0967199413000038 (2013).

Note 7. Ghazarian, H, B.Idoni, S.Oppenheimer. . A Glycobiology Review: Carbohydrates, Lectins, and Implications in Cancer Therapeutics). Acta Histochemica, vol. 113, pages 236-247 (2011) PMCID PMC3027850. On the order of 10,000 downloads. One of the most of all time.

Note 8. Dreyfuss, J. and S. Oppenheimer. Cyclodextrins and cellular interactions in E. Bilensoy, ed., Cyclodextrins in Pharmaceutics, Cosmetics, and Biomedicine, Current and Future Industrial Applications, John Wiley and Sons, Hoboken, N.J., Chapter 15, pp. 287-295. (2010).

Note 9. Idoni, B. H.Ghazarian, S.Metzenberg, V.Hutchins-Carroll, S.Oppenheimer, and E.Carroll Jr. Use of Specific Glycosidases to Probe Cellular Interactions in the Sea Urchin Embryo. Experimental Cell Research, vol. 316, pp. 2204-2211 (2010) PMCID PMC2921930.

Note 10. Alvarez, M., Nnoli, J., Carroll, E.J., Jr., Hutchins-Carroll, V., Razinia, Z., Oppenheimer, S.B., Exogenous Hyalin and Sea Urchin Gastrulation, Part II: Hyalin, An Interspecies Cell Adhesion Molecule, Zygote 16: 73-78 (2008). PMCID PMC2557437

Note 11. Carroll, E.J., Jr., Hutchins-Carroll, V., Coyle-Thompson, C., Oppenheimer, S.B., Hyalin is a Cell Adhesion Molecule Involved in Mediating Archenteron-Blastocoel Roof Attachment, Acta Histochemica, 110: 265-275 (2008). PMID 18262230

Note 12. Contreras, A., Vitale, J., Hutchins-Carroll, V., Carroll, E.J., Oppenheimer, S.B., Exogenous Hyalin and Sea Urchin Gastrulation. Part III: Biological Activity of Hyalin Isolated from Lytechinus pictus embryos, Zygote 16: 355-361 (2008). PMCID PMC2586997

Note 13. Oppenheimer, S. B., Alvarez, M., Nnoli, J., Carbohydrate-Based Experimental Therapeutics for Cancer, HIV/AIDS and Other Diseases, Acta Histochemica 110: 6-13 (2008). PMCID PMC2278011.

Note 14. Oppenheimer, S.B., Cellular Basis of Cancer Metastasis: A Review of Fundamentals and New Advances, Acta Histochemica, 108:327-334 (2007). This paper garnered the most downloads of all papers in this Elsevier journal, August 06-March 07 (813 downloads). PMID16730054

Note 15. Petrossian, K., Banner, L., Oppenheimer, S.B., Lectin Binding and Lectin Effects on Human Cancer and Non-Cancer Cell Lines: Examination of Issues of Interest in Drug Design Strategies, Acta Histochemica 109: 491-500 (2007).

Note 16. Razinia, Z., Carroll, Jr., E.J., Oppenheimer, S.B., Microplate Assay for Quantifying Developmental Morphologies: Effects of Exogenous Hyalin on Sea Urchin Gastrulation, Zygote 15: 1-6 (2007).

Note 17. Sajadi, S., Rojas, P., Oppenheimer, S.B., Cyclodextrin, A Probe for Studying Adhesive Interactions, Acta Histochemica 109: 338-342 (2007). PMCID PMC 1988679.

Note 18. Zem, G.C., Badali, O., Gaytan, M. Hekmatjou, H., Alvarez, M., Nnoli, J., Katus, E., Oppenheimer, S.B., Microbead Analysis of Cell Binding to Immobilized Lectin: An Alternative to

Microarrays in the Development of Carbohydrate Drugs and Diagnostic Tests, Acta Histochemica 108: 311-317 (2006).

Note 19. Ghazarian, H., Coyle-Thompson, C., Dalrymple, W., Hutchins-Carroll, V., Metzenberg, S., Razinia, Z., Carroll, Jr., E.J., Oppenheimer, S.B., Exogenous Hyalin and Sea Urchin Gastrulation, Part IV: a Direct Adhesion Assay- Progress in Identifying Hyalin's Active Sites, Zygote 18: 17-26 (2010). PMCID PMC2817981

Note 20. Oppenheimer, S. & Meyer, J. (1982). Carbohydrate specificity of sea urchin blastula adhesion component, Experimental Cell Research, 139, 451-456.

Note 21. Idoni, B., Ghazarian, H., Metzenberg, S., Hutchins-Carroll, V, Carroll, Jr., E., & Oppenheimer, S. (2010). Use of specific glycosidases to probe cellular interactions in the sea urchin embryo. Experimental Cell Research, 316, 2204-2211.

Note 22. Liang, J., Aleksanyan, H., Metzenberg, S., & Oppenheimer, S. (2016). Involvement of L-rhamnose in sea urchin gastrulation. Part II: alpha rhamnosidase, Zygote 24, 37-377.

Note 23. K. Crocker, J. Deleon, L. Telliyan, K.Aprelian, A. Rosenberg, N. Pouri, G. Beltran, V. Ramirez, D. Kaufman, A. Petrosyan, D. Nazarian, M. Magistrado, S. Matinian, D. Hanna, S. Eskandari, F. Atanante, A. Nerses, G. Zem, S. Oppenheimer A Kinetic Assay for Drug Discovery: Part 2, Sodium Sulfate, American Journal of Applied Scientific Research, 2020; 6(2): 39-42 http://www.sciencepublishinggroup.com/j/ajasr doi: 10.11648/j.ajasr.20200602.12 ISSN: 2471-9722 (Print); ISSN: 2471-9730 (Online).

Note 24. V. Nahapetyan, S. Delos Santos, K. Crocker, D.Tobar, D.Nazarian, H. Chirishyan, G.Beltran, R. Dubin, L. Reque, P. Singh, B. Cardona, G. Royce Bachinela, L. Sarkisyan, G. Zem, S. Oppenheimer. A manual kinetic assay in a fixed yeast model for drug discovery American Journal of Applied Scientific Research 5, No1: 28-35. Doi 10.11648/j.ajasr.20190501.15 (2019).

Note 25. Aleksanyan, H., Liang, J., Metzenberg, S., Oppenheimer, S.B., Terminal alpha-D-mannosides are critical during sea urchin gastrulation, Zygote doi: 10.1017/SO967199416000113 (2016).

Note 26. A. Ghazarian, Oppenheimer, S Microbead analysis of cell binding to immobilized lectin. Part II: quantitative kinetic profile assay for possible identification of anti-infectivity and anti-cancer reagents http://dx.doi.org/10.1016/j.acthis.2014.07.015, Acta Histochemica 116 (2014) 1514-1518.

Note 27. Singh, E. Karabidian, A. Kandel, S. Metzenberg, E. Carroll, Jr,. S. Oppenheimer, A role for polyglucans in a model sea urchin embryo cellular interaction, Zygote (Cambridge University Press), (2013), doi.10.1017/S096719943000038 (2013).

Note 28. H. Ghazarian, C. Coyle-Thompson, Dalrymple, V. Hutchins-Carroll, S. Metzenberg, Z. Razinia, E. Carroll, Jr., S. Oppenheimer Exogenous Hyalin and Sea Urchin Gastrulation, Part IV: a Direct Adhesion Assay – Progress in Identifying Hyalin's Active Sites Zygote 18: 17-26 (2010).

Note 29. A. Contreras, Vitale, V. Hutchins-Carroll, E. Carroll, Jr, S.Oppenheimer. Exogenous Hyalin and Sea Urchin Gastrulation, Part III: Biological Activity of Hyalin Extracted from Lytechinus pictus embryos Zygote, vol. 16, pp. 355-361 (2008).

Note 30. E. Carroll, Jr., V. Hutchins-Carroll, C.Coyle Thompson, S. Oppenheimer. Hyalin is a Cell Adhesion Molecule Involved in Mediating Archenteron Blastocoel Roof Attachment, Acta Histochemica, vol. 110, pp. 265-275 (2008).

Note 31. M. Alvarez, J. Nnoli, E. Carroll, Jr., V. Hutchins-Carroll, Z. Razinia, S. Oppenheimer. Exogenous Hyalin and Sea Urchin Gastrulation, Part II: Hyalin, An Interspecies Cell Adhesion Molecule, Zygote, vol. 16, pp. 73-78 (2008).

Note 32. M. Alvarez, J. Nnoli, S. Oppenheimer. Carbohydrate-Based Experimental Therapeutics for Cancer, HIV/AIDS and Other Diseases, Acta Histochemica, vol. 110, pp. 6-13 (2008).

Note 33. K. Petrossian, L.Banner, S.Oppenheimer. Lectin Binding and Effects in Culture on Human Cancer and Non-Cancer Cell Lines: Examination of Issues of Interest in Drug Design Strategies, Acta Histochemica, vol 109, pp. 491-500 (2007).

Note 34. Z. Razinia, E. Carroll, Jr, S. Oppenheimer. Microplate Assay for Quantifying Developmental Morphologies: Effects of Exogenous Hyalin on Sea Urchin Gastrulation, Zygote, vol 15, pp. 1-6 (2007).

Note 35. S. Sajadi, Rojas, S. Oppenheimer. Cyclodextrin, A Probe for Studying Adhesive Interactions, Acta Histochemica, vol. 109, pp. 338-342 (2007).

Note 36. S. Oppenheimer. Cellular Basis of Cancer Metastasis: A Review of Fundamentals and New Advances Acta Histochemica, vol. 108, pp. 327-334 (2006).

Note 37. G. Zem, O. Badali, Gaytan, Hekmatjou, M. Alvarez, J. Nnoli, Katus, S. Oppenheimer. Microbead Analysis of Cell Binding to Immobilized Lectin: An Alternative to Microarrays in the Development of Carbohydrate Drugs and Diagnostic Tests, Acta Histochemica, vol. 108, pp. 311-317 (2006).

Note 38. L. Welty, E. Heinrich, C. Garcia, L. Banner, M. Summers, L. Baresi, S. Metzenberg, C Coyle-Thompson, S.Oppenheimer. Analysis of Unconventional Approaches for the Rapid Detection of Surface Lectin Binding Ligands on Human Cell Lines Acta Histochemica, vol. 107, pp. 411-420 (2006).

Note 39. C. Coyle-Thompson, S. Oppenheimer. A Novel Approach to Study Adhesion Mechanisms by Isolation of the Interacting System , Acta Histochemica, vol. 107, pp. 243-251 (2005).

Note 40. E.Heinrich, L. Welty, L. Banner, S. Oppenheimer. Direct Targeting of Cancer Cells: A Multiparameter Approach, Acta Histochemica, vol. 107, pp. 335-344 (2005).

Note 41. M. Khurrum, Hernandez, Eskalaei, O. Badali, C. Coyle-Thompson, S. Oppenheimer. Carbohydrate Involvement in Sea Urchin Gastrula Cellular Interactions Acta Histochemica, vol. 106, pp. 97-106 (2004).

Note 42. M.Maldonado, G. Weerasinghe, F.Ambroise, Yamoah, M. Londono, J. Pelayo, Grigorian, S. Oppenheimer, The Charged Milieu: A Major Player in Fertilization Reactions, Acta Histochemica, vol. 106, pp. 3-10 (2004).

Note 43. L. Ngo, M. Barajas, G. Weerasinghe, G. Zem, S. Oppenheimer. A New Histochemical Approach for Studying Sperm Cell Surfaces, Acta Histochemica, vol. 105, pp. 21-28 (2003).

Note 44. M. Khurrum, G. Weerasinghe, E. Soriano, R. Riman, O. Badali, S. Gipson, Medina, Alfaro, V. Navarro, C. Harieg, L. Ngo, T. Sakhakorn, L. Kirszenbaum, Khatibi, Abedi, M. Barajas, G. Zem, A. Kirszenbaum, Razi, S. Oppenheimer. Analysis of Surface Properties of Human Cancer Cells Using Derivatized Beads, Acta Histochemica, vol. 104, pp. 217-223 (2002).

Note 45. V. Navarro, S. Walker, O. Badali, Abundis L. Ngo, G. Weerasinghe, M. Barajas, G. Zem, S. Oppenheimer. Analysis of Surface Properties of Fixed and Live Cells Using Derivatized Agarose Beads, Acta Histochemica, vol. 104, pp. 99-106 (2002).

Note 46. B. Salbilla, H. Vaghefi, Chhabra, Hall, Bworn, Sadoughi, E.Francisco, L. Attas, S. Walker, Nguyen, S. Oppenheimer

Analysis of Cell Surface Properties Using Derivatized Agarose Beads Acta histochemica, Vol. 101, pp. 271-279 (1999).

Note 47. V. Latham, S. Oppenheimer. A Simple Image Analysis Method for Evaluating Cell Binding to Derivatized Beads Acta histochemica, Vol. 101, pp. 263-270 (1999).

Note 48. V. Latham, M. Tully, S. Oppenheimer. A Putative Role for Carbohydrates in Sea Urchin Gastrulation Acta histochemica, Vol. 101, pp. 293-303 (1999).

Note 49. V.Latham, L. Latham, S. Oppenheimer. Desktop Computer-Based Image Analysis of Cell Surface Fluorescence Patterning from a Photographic Source. Acta histochemica, vol. 98, pp. 295-300 (1996).

Note 50. J. Philip, Rodriguez, R. Bada, F. Ambroise and Hernandez, S. Oppenheimer. Charge Interactions in Sperm-Egg Recognition, Acta histochemica, Vol. 99, pp. 401-410 (1997).

Note 51. Ghoneum, Vojdani, A. Banionis, Lagos and Gill, S. Oppenheimer. The Effects of Carcinogenic Methylcholanthrene on Carbohydrate Residues of NK cells. Toxicology and Industrial Health, Vol. 13, No. 6, pp. 727-741, 1997.

Note 52. V. Latham, Martinez, L. Cazares, Hamburger M. Tully, S. Oppenheimer. Accessing the Embryo Interior Without Microinjection, Acta histochemica, Vol. 100, pp. 193-200 (1998).

Note 53. R. Roque, S. Herrera, Yeh,. J. Philip, T. Borisavljevic, L. Brunick, Miles, Haritunians, C. Addy, R. Bada, H. Vaghfi, S. Matsumoto, G. Picionelli and Rodriquez, S. Oppenheimer. Cell Adhesion Mechanisms: Modeling Using Derivatized Beads and Sea Urchin Cell Systems , Acta histochemica, Vol. 98, pp. 441-451 (1996).

Note 54. M. Daily, V. Latham, C. Garcia, C. Hockman, H. Chun, M. Oppenheimer, S. West, K. Rostamiani, R.Chao, E. Pollock, S. Oppenheimer. Producing Exposed Coat-Free Embryos, Zygote, Vol. 2, pp. 221-225 (1994).

Note 55. M. Spiegler, S. Oppenheimer. Extending the Viability of Sea Urchin Gametes, Cryobiology, Vol. 32, pp. 168-174 (1995).

Note 56. V. Latham, J. Ducut, K. Rostamiani, H. Chun, Lopez, S. Herrera, S. Oppenheimer. A Rapid Lectin Receptor Binding Assay: Comparative Evaluation of Sea Urchin Embryo Cell Surface Lectin Receptors, Acta histochemica, Vol. 97, p. 89-97 (1995).

Note 57. V. Latham, S. Herrera, K. Rostamiani, H. Chun, S. Oppenheimer. Rapid Identification of Lectin Receptors and Their Possible Function in Sea Urchin Cell Systems, Acta histochemica, Vol.97,pp. 373-382 (1995).

Note 58. M. Ghoneum, A. Banionis, Gill and Romero, S. Oppenheimer Demonstration of Involvement of Mannose Residues on NK Cell Cytotoxicity using Lectin - Coupled Beads, Natural Immunity and Cell Growth Regulation, 10:132(1991).

Note 59. S. Oppenheimer, Biology and Cultivation of Teratoma Cells, in Tests of Teratogenicity in Vitro, North Holland, Amsterdam, pp. 261-274.

Note 60. S.Oppenheimer, Human Made Carcinogens vs. Natural Food Carcinogens: Which Post the Greatest Cancer Risk? American Clinical Products Review, Vol. 4, No. 2, pp. 16-19, February 1985.

Note 61. S.Oppenheimer Cancer and Stress, Longevity Letter, 2(6): 3, 1984.

Note 62. S.Oppenheimer, Carcinogens in Food and Water, Longevity Letter, 2(9): 2-3, 1984.

Note 63. S. Oppenheimer Carcinogens in the Home, Longevity Letter, 3(5): 2-4, May 1985.

Note 64. S. Oppenheimer Preventing Cancer, American Longevity 1 (no.1), pp. 1-5, 1983.

Note 65. Meyer, P. Thompson, R. Behringer, R. Steiner, Saxton, S. Oppenheimer. Protease Activity Associated with Loss of Adhesiveness in Mouse Teratocarcinoma Exp. Cell Res., 143, pp. 63-70, 1983.

Note 66. Meyer, S. Oppenheimer. Carbohydrate Specificity of Sea Urchin Blastula Adhesion Component, Exp. Cell. Res., 139, pp. 451-456. 1982.

Note 67. S. Oppenheimer Causes of Cancer: Gene Alteration Versus Gene Activation, Amer. Lab., pp. 40-46, November 1982.

Note 68. J. Meyer, S. Oppenheimer Isolation of Species-specific and Stage-specific Adhesion Promoting Component by Disaggregation of Intact Sea Urchin Embryo Cells, Exp. Cell Res., 137, pp. 471-476, 1982.

Note 69. C. Capelle, J. Meyer, S. Sorensen, S. Oppenheimer Isolation of Aggregation Inhibitory Factor from Non-Adhesive Mouse Teratoma Cells, Exp. Cell Res., 131, pp. 470-476, 1981.

Note 70. W. Childress, Freedman, C. Koprowski, Doolittle and P. Sheeler, S. Oppenheiimer, Surface Characteristics of Separated Subpopulations of Mouse Teratocarcinoma Cells, Exp. Cell Res., 122, pp. 39-45, 1979.

Note 71. M. Grodin, Nystrom, J. Scordato,, M. Cantor, S.Oppenheimer Relationship of Adhesiveness of Cells in Culture with Specific Enzyme Activity, Exp. Cell Res., 122, pp. 149-157, 1979.

Note 72. M.Asao, S. Oppenheimer Inhibitor of Cell Aggregation by Specific Carbohydrates, Exp. Cell. Res., 120, pp. 149-157, 1979.

Note 73. S. Oppenheimer Introduction to the Symposium and Studies on the Surfaces of Separated and Synchronized Tumor and Embryonic Cell Populations. American Zoologist, 19, pp. 801-808, 1979.

Note 74. S. Oppenheimer, Cell Surface Carbohydrates in Adhesion and Migration, American Zoologist, 18, pp. 12-23, 1978.

Note 75. B. Bales, Brenneman, L. Knapp, Lesin, A.Neri, E.Pollock, S. Oppenheimer Modulation of Agglutinability by Alteration of the Surface Topography in Mouse Ascites Tumor Cells Exp. Cell Res., 105, pp. 291-300, 1977.

Note 76. B. Bales, Lesin, S. Oppenheimer On Cell Membrane Lipid Fluidity and Plant Lectin Agglutinability: A Spin Label Study of Mouse Ascites Tumor Cells, Biochemica et Biophysica Acta, 465, pp. 400-407, 1977.

Note 77. J. Meyer, S. Oppenheimer The Multicomponent Nature of Teratoma Cell Adhesion Factor, Exp. Cell Res., 102, pp. 359-364, 1976.

Note 78. A. Neri, M. Roberson, D. Connolly, S. Oppenheimer Quantitative Evaluation of Concanavalin A Receptor Site Distributions on the Surfaces of Specific Populations of Embryonic Cells, Nature, 258, pp. 342-344, 1975.

Note 79. D. Connolly, S. Oppenheimer Cell Density-Dependent Stimulation of Glutamine Synthetase Activity in Cultured Mouse Teratoma Cells, Exp. Cell Res., 94, pp. 459-464, 1975.

Note 80. M. Roberson, A. Neri, S. Oppenheimer), Distribution of Concanavalin A Receptor Sites on Specific Populations of Embryonic Cells , Science, 189, pp. 639-640, 1975.

Note 81. S. Oppenheimer. Functional Involvement of Specific Carbohydrates in Teratoma Cell Adhesion Factor, Exp. Cell Res., 92, pp. 122-126, 1975.

Note 82. M. Roberson, S. Oppenheimer Quantitative Agglutination of Specific Populations of Sea Urchin Embryo Cells with Concanavalin. A Exp. Cell Res. 91, pp. 263-268, 1975.

Note 83. K. Krach, A. Green G. Nicolson, S. Oppenheimer Cell Surface Changes Occurring During Sea Urchin Embryonic Development Monitored by Quantitative Agglutination with Plant Lectins, Exp. Cell Res., 84, pp. 191-198, 1974.

Note 84. S. Oppenheimer Utilization of L-Glutamine in Intercellular Adhesion: Ascites Tumor and Embryonic Cells, Exp. Cell. Res., 77, pp. 175-182, 1983.

Note 85. R. Potter M. Barber, S. Oppenheimer Alteration of Sea Urchin Embryo Cell Surface Properties by Mycostatin, a Sterol Binding Antibiotic, Developmental Biology, 33, pp. 218-223,

Note 86. S. Oppenheimer J. Odencrantz ,A Quantitative Assay for Measuring Cell Agglutination: Agglutination of Sea Urchin Embryo and Mouse Teratoma Cells by Concanavalin A, Exp. Cell Res., 73, pp. 475-480, 1972.

Note 87. S. Oppenheimer, T.Humphreys Isolation of Specific Macromolecules Required for Adhesion of Mouse Tumor Cells , Nature, 232, pp. 125-127, 1971.

Note 88. S. Oppenheimer M. Edidin, C. Orr and S. Roseman An L-Glutamine Requirement for Intercellular Adhesion, Proceedings of the National Academy of Sciences USA, 63, pp. 1395-1402, 1969.

Note 89. S.Oppenheimer, Motivating College Students: Evidence from 20 years of Anonymous Student Evaluations, Higher Education Reseach, doi: 10.11648 (2019).

Please Note: Most of the co-authors on these papers are students. These are only the full length peer-reviewed papers from the Oppenheimer lab. Published abstracts and national presentations are not included.

Note 90. S. Oppenheimer, Lab Training: Undergraduate Research in Action, Nature 519, 158 [2015).

Note 91. S.Oppenheimer, Include Mentoring Skills in Hiring and Promotion Criteria, Nature 554, 31 (2018).

Note 92. Camacho, N.L., ER Doctor's Gift Honors Biology Professor for Changing the Trajectory of Her Life, CSUN Magazine, (May 30, 2018).

Note 93. Oppenheimer, S., et al., Applied Science Research for All Part 2 College Level, American Journal of Applied Scientific Research 7(1): 1-7 (2020).

Note 94. Oppenheimer, S., University on the Rise without Ph.D. Students, Nature 538: 171 (2016).

These are some of the student career outcomes that may have helped lead to the AAAS Fellow election, US Presidential Award and CSU system statewide Outstanding Professor Award. * denotes completed the Masters degree with Steve. Some duplication may be inadvertently included.

John Scordato, Ph.D. USC *
Paul Aunchman, Environmental Pollution , Health Inspector *
Bill Childress, ran computer firm *
Chris Capelle, M.D. *
Richard Behringer, Ph.D., Professor *
Steve Sorenson, D.D.S. *
Bill Saxton, Ph.D. U Colorado, Professor *
Peter Thompson, M.D. *.
R. Clay Steiner, M.D. *
Mina Alikani, Lead Specialist, Cornell In vitro fertilization program *
Stanley Liang, Ph.D., Harvard *
Karen Simpson, USC Dental School *
Julie Gorchynski. M.D., Clinical Medicine Director, UC Irvine now Texas, Professor, BIG CSUN DONOR *
Elias Azzam, Research Associate *
Susan Crowther, Professor, College of the Canyons *
Larry Tawa, M.D. *
Sheryl Fulop, D.V.M. *
Heber Becker, UCLA Medical School *
Karen Berg, M.D. *
Dana Nojima, Ph.D., U Minnesota *
Phil Patenaude, K-12 teacher *
Arunas Banionis, M.D. *
Pradnya Kuwwadekar, Research Scientist *
Miriam Golbert, Professor, Community College *
Debra Kowal, Forensic Technologist, Community College Instructor *
Helen Fredell, K-12 teacher *
Jerome Puttler, K-12 teacher *
Linda Esmaili, Research Scientist *
Marci Spiegler, Community College Instructor *
Mohsen Saidinejad, Ph.D. pgm *
Greg Bentley, Research Associate *
Alice Stanboli, Biotechnology Research Scientist *
Mehrnoosh Saghizadeh, Biotechnology Research Scientist *
Tanya Borisavljevic, M.D. *
Sandra Matsumoto, Ph.D., U Utah, Industry Scientist *
Ani Issaian, Cal Tech Electron Microscopy Facility Director *

Ron Roque, Pollution Inspector, City of Los Angeles *
Pat Krueger, U.S. Forest Service Scientist *
Valerie Dunn, Research Scientist, Industry *
Michael Daily, M.D. *
Brian Salbilla, Research Associate? *
Norman Lautsch, Research Associate ? *
John Slack, was in med school *
Majid Heydarizadeh, Ph.D. pgm *
Ana Garcia-Flack? *
Mary Keens, Criminologist *
Miguel Rocha, Research Associate *
Bibi Aguero, Research Scientist, Industry *
Tun-yin Joseph Yeh, Ph.D., U Utah *
Cynthia Hochman, D.V.M. *
Vern Traxler, Criminologist *
Jessy Philip, Criminologist *
Virginia Latham, Senior Research Associate *
Pavanjit Chhabra, D.D.S. *
Audra McKenzie, Research Associate *
Paul Narguizan, Ed.D. or Ph.D. USC Professor or Adjunct Professor *
Houman Vaghefi, M.D./Ph.D. Chicago Med *?
Tharenee Sakhakorn, D.D.S.? *
Bernard Hunwick, Ph.D. pgm? *
Vanessa Navarro, M.D. *
Sheri Walker, M.D.
David Khatibi, M.D. *
Lital Kirszenbaum, D.V.M. pgm UC Davis *
Lyla Ngo, Medical School *
Evelyn Soriano, was in Ph.D. pgm
Lily Welty, Ph.D. or Masters pgr UCSB *
Eileen Heinrich, Ph.D. UCLA, postdoc *
Ziba Razinia, Ph.D. pgm Yale, post doc. U Penn *
Hesam Hekmatjou, was in Harvard Dental School
Astrid Hernandez, K-12 teacher
Anna Martinez, Stanford Medical School
Luis Rodriguez, Ph.D. Cornell, Senior Scientist NIH
Monica Tully, K-12 teacher *
Maria Abundis, UCSD Medical School

Juan Carlos Pelayo, UCSF, M.D.
Edward Yamoah, UCSF M.D.
Gayanee Weerasinghe, Johns Hopkins/NIH Ph.D. pgm
Marcella Barajas, U Minnesota Ph.D. pgm
Arash Razi, NYU Dental School *
Karina Garcia, West Virginia U Masters pgm
Nasim Monajemi, M.D. pgm
Claudia Garcia, Ph.D. Harvard, Senior Scientist
Sabino Herrera, D.V.M. UC Davis
Karen Brannon, M.D./Ph.D. pgm U Kansas
Celina Barba, M.D. Stanford Medical School, Emergency Room Physician, co-director Emergency Department
Rhodelio Cruz, Ph.D. UC Berkeley *
Jeanette Ducut, Ph.D., UCSD, postdoc
Karolin Abedi, Pharmacy School
Rashad Riman, Dental School
Stephanie Gipson, Criminologist
Juan Sosa, Medical School
Melena Grigorian, Phg.D. pgm
Edna Francisco, Science Writer
Liat Attas, Medical School
Talin Haritunians, Ph.D. pgm
Cecil Addy, M.D.
Krystal Jarvis, Laboratory technician*
Linda Brunick, Ph.D. pgm
Monica Londono, Research Associate
Mike Kaliko, Chiropractic pgm *
Maribel Alvarez, Ph.D. pgm UC Irvine
Karineh Petrossian, Ph.D. pgm City of Hope *
Jennifer Nnoli, Ph.D. pgm, Sloan Kettering
Rashad Riman. Dental School
Christine Le, Dental School *
Arjang Naminik, Dental School *
Arbi Keshishian, Dental School *
Evelin Adamian, Dental School
Rabin Ebrahimi, Pharmacy School
Souren Basmadjian, Pharmacy School
Mike Astete, Dental School
Jehan Murugaser, M.D.

Stacy Tanaka, K-12 Teacher
Ignacio Saldain, K-12 Teacher*
Oliver Badali, Cosmetics Scientist
Rowena Bada, Nurse
Azalia Contreras, Community College Instructor *
Pouria Parsa, M.D.
Massoud Agahi, M.D.
Mary Haghi, M.D., Pediatric Endocrinologist
Neema Oroomchi, Medical School
Ardy Khou, Dental School
Sina Samie, Medical School
Anush Margarian, Pharmacy School
Marie Gonzalez, Pharmacy School
Allen Tabibian, M.D., FACC, Cardiologist
Ralph Buoncristiani, D.D.S.
Stephen E. Jones, M.D.
Andy Solkovits, M.D., Assoc. Professor UC Davis
Erica Dent, Master of Health Administration pgm USC
Jenieke Allen, admit.Ph.D. pgm*
Justin Dreyfuss, Ph.D. pgm, USC*
Diana Naderi, admit MD pgm
Brian Idoni, Research Tech II USC*
Margaret Lemell (Aranda), M.D.
Richard Karout, Pharmacy school
Arbi Keshishian, Dental School*,
Tiffany Smith, PA program
Christine Le, Dental School*
Arjang Naminik, Dental School*
William Dalrymple, Osteopathic School of Medicine
Ziba Razinia, Ph.D. Yale, Postodc U Penn*
Earl Sandroff, D.M.D.
Susan Wensel, Monsanto R&D*
Kim Krach, M.D.*
Sokuntheavy So, Research technician
Oliver Badali, Cosmetics industry chemist
Collete Bibayan, admitted 2 pharmacy schools
Vanessa Navarro, M.D., Family Practice San Diego *
Mark Sussman, Ph.D., DISTINGUISHED PROFESSOR SAN DIEGO STATE

Herry Budiyono, Hospital patient analyst*
Claudine Bulan, Cytology Training Program, Wisconsin
Houman Vaghefi, MD, Ph.D, Radiation Oncologist*
Poria Edalat, Dental School
Lauren Michaels, Veterinary School
Basmah Akhter, Pharmacy School
Nareeneh Zadori, Pharmacy School
Eileen Heinrich, Ph.D. UCLA, now staff scientist at City of Hope*
Jordan Vallejo, h.s. summer res 2yrs, Purdue University, mechanical engineering
Niosha Edalat, USC Dental School and Admissions Ambassador
Forooze Rashidi, Instructor College of the Canyons*
Odette Arman, In vitro fertilization clinic embryologist*
Mark Colgin, Clinical laboratory technologist
Drew Edelberg, high school research student, B.S. Berkeley, Ph.D. Program,
solid state physics, Columbia University
Maria Atikyan, Masters in nursing program
Alexandra Mokh, Instructor/Professor, LA Valley College*
Pam Klein, M.D., Vice President Clinical Development at Genentech
Tina Askari, research associate*
Hurig Katchikian, medical school*
Marianna Muradyan, pharmacy school USC
Lana Darghali, pharmacy school
Lusineh Mirzakhani, admitted to pharmacy school
Evelyn Adamian, dentist
Ofelya Tonyan, accepted Western University of Health Sciences
Jigar Patel, medical school
Jenieke Allen, Ph.D. program Cedars Sinai*
Krystal Jarvis, teacher*
Hamid Davoudi, college teacher, PA program*
Forooze Rashidi, teacher*
Odette Arman, In vitro fertilization embryologist,*
Ronik Khachatoorian,. Ph.D. UCLA, postdoc UCLA
Mirey Qubrosi, Technical Associate, product testing research
Oryla Wiedoeft, EdD, Teacher, Asst. Principal,
Jouliana Davoudi, Dental school USC*
Debrin Yahya-Kashani, CSUN Nutrition Masters program
Yukiko Kanda, Masters program in social work

John Sobhani, research associate UCLA
Tiffany Smith, PA program* USC Keck School of Medicine
Suprita Singh, Ph.D. program Penn State*
Hye Na Kim, research assistant
Ignacio Saldain, HS teacher*
Jung Suh, Amgen quality control analyst
Krystal Jarvis, Research associate*
Careen Khatchitorian, Ph. D pgm, UC Riverside
Marina Hernandez Vergara, K-12 teacher
Ravneet Gill, MD pgm
Hamid Allatabakhsh, dentist- periodontist
Anita Aloian, Optometry pgm, Western University
Eddie Karabidian, USC Dental School*
Hamid Davoudi, PA program*
Pam Klein, M.D., Oncologist, Head Biotechnology company
Noreen Warner, PA program
Lenny Mayorga, Lenny, USC Dental School
Edmund Petrossian, Med School
Nomiki Kolettis, Ph.D. pgm UC Riverside, now research associate
Yukiko Kanda Petrus, Masters of Social Work pgm CSUN
Anasheh Ghazarian, research technician
Sokunttheavy So, research technician
Hiensen Hiesmantjaja, Med School
Armin Sarkissian, Med School
Ivette Ramos Ortega, med school, 9-19-14, remarkable testimonial sent
Virginia Hutchins Carroll, laboratory manager College of the Canyons *
Samantha Arvizu, technical associate
Mai Phan, csun M.S.pgm, research associate
Gayani Weerasinghe, passed bar, patent attorney
Miriam Golbert, Chair, Biology Department, College of the Cabnyons*
Heghush Aleksanyan, csun M.S. pgm, teaching assoc, medical school
Alex Kandel, law school – Berkeley
Helen Chun, Ph.D. and postdoc UCLA, Assoc.Prof., Chair Biology, CSU Dominguez Hills
Karina Garcia, Ph.D. program, history

Herry Budiyono, Hospital patient analyst*
Claudine Bulan, Cytology Training Program, Wisconsin
Houman Vaghefi, MD, Ph.D, Radiation Oncologist*
Poria Edalat, Dental School
Lauren Michaels, Veterinary School
Basmah Akhter, Pharmacy School
Nareeneh Zadori, Pharmacy School
Eileen Heinrich, Ph.D. UCLA, now staff scientist at City of Hope*
Jordan Vallejo, h.s. summer res 2yrs, Purdue University, mechanical engineering
Niosha Edalat, USC Dental School and Admissions Ambassador
Forooze Rashidi, Instructor College of the Canyons*
Odette Arman, In vitro fertilization clinic embryologist*
Mark Colgin, Clinical laboratory technologist
Drew Edelberg, high school research student, B.S. Berkeley, Ph.D. Program,
solid state physics, Columbia University
Maria Atikyan, Masters in nursing program
Alexandra Mokh, Instructor/Professor, LA Valley College*
Pam Klein, M.D., Vice President Clinical Development at Genentech
Tina Askari, research associate*
Hurig Katchikian, medical school*
Marianna Muradyan, pharmacy school USC
Lana Darghali, pharmacy school
Lusineh Mirzakhani, admitted to pharmacy school
Evelyn Adamian, dentist
Ofelya Tonyan, accepted Western University of Health Sciences
Jigar Patel, medical school
Jenieke Allen, Ph.D. program Cedars Sinai*
Krystal Jarvis, teacher*
Hamid Davoudi, college teacher, PA program*
Forooze Rashidi, teacher*
Odette Arman, In vitro fertilization embryologist,*
Ronik Khachatoorian,. Ph.D. UCLA, postdoc UCLA
Mirey Qubrosi, Technical Associate, product testing research
Oryla Wiedoeft, EdD, Teacher, Asst. Principal,
Jouliana Davoudi, Dental school USC*
Debrin Yahya-Kashani, CSUN Nutrition Masters program
Yukiko Kanda, Masters program in social work

Julie Gorchynski. M.D., Clinical Medicine Director, UC Irvine now Texas, Professor, BIG CSUN DONOR *

Elias Azzam, Research Associate *

Susan Crowther, Professor, College of the Canyons *

Larry Tawa, M.D. *

Sheryl Fulop, D.V.M. *

Heber Becker, UCLA Medical School *

Karen Berg, M.D. *

Dana Nojima, Ph.D., U Minnesota *

Phil Patenaude, K-12 teacher *

Arunas Banionis, M.D. *

Pradnya Kuwwadekar, Research Scientist *

Miriam Golbert, Professor, Community College *

Debra Kowal, Forensic Technologist, Community College Instructor *

Helen Fredell, K-12 teacher *

Jerome Puttler, K-12 teacher *

Linda Esmaili, Research Scientist *

Marci Spiegler, Community College Instructor *

Mohsen Saidinejad, Ph.D. pgm *

Greg Bentley, Research Associate *

Alice Stanboli, Biotechnology Research Scientist *

Mehrnoosh Saghizadeh, Biotechnology Research Scientist *

Tanya Borisavljevic, M.D. *

Sandra Matsumoto, Ph.D., U Utah, Industry Scientist *

Ani Issaian, Cal Tech Electron Microscopy Facility Director *

Ron Roque, Pollution Inspector, City of Los Angeles *

Pat Krueger, U.S. Forest Service Scientist *

Valerie Dunn, Research Scientist, Industry *

Michael Daily, M.D. *

Brian Salbilla, Research Associate? *

Norman Lautsch, Research Associate ? *

John Slack, was in med school *

Majid Heydarizadeh, Ph.D. pgm *

Ana Garcia-Flack? *

Mary Keens, Criminologist *

Miguel Rocha, Research Associate *

Bibi Aguero, Research Scientist, Industry *

Tun-yin Joseph Yeh, Ph.D., U Utah *

Cynthia Hochman, D.V.M. *

Vern Traxler, Criminologist *

Jessy Philip, Criminologist *

Virginia Latham, Senior Research Associate *

Pavanjit Chhabra, D.D.S. *

Audra McKenzie, Research Associate *

Paul Narguizan, Ed.D. or Ph.D. USC Professor or Adjunct Professor *

Houman Vaghefi, M.D./Ph.D. Chicago Med *?

Tharenee Sakhakorn, D.D.S.? *

Bernard Hunwick, Ph.D. pgm? *

Vanessa Navarro, M.D. *

Sheri Walker, M.D.

David Khatibi, M.D. *

Lital Kirszenbaum, D.V.M. pgm UC Davis *

Lyla Ngo, Medical School *

Evelyn Soriano, was in Ph.D. pgm

Lily Welty, Ph.D. or Masters pgr UCSB *

Eileen Heinrich, Ph.D. UCLA, postdoc *

Ziba Razinia, Ph.D. pgm Yale, post doc. U Penn *

Hesam Hekmatjou, was in Harvard Dental School

Astrid Hernandez, K-12 teacher

Anna Martinez, Stanford Medical School

Luis Rodriguez, Ph.D. Cornell, Senior Scientist NIH

Monica Tully, K-12 teacher *

Maria Abundis, UCSD Medical School

Juan Carlos Pelayo, UCSF, M.D.

Edward Yamoah, UCSF M.D.

Gayanee Weerasinghe, Johns Hopkins/NIH Ph.D. pgm

Marcella Barajas, U Minnesota Ph.D. pgm

Arash Razi, NYU Dental School *

Karina Garcia, West Virginia U Masters pgm

Nasim Monajemi, M.D. pgm

Claudia Garcia, Ph.D. Harvard, Senior Scientist

Sabino Herrera, D.V.M. UC Davis

Karen Brannon, M.D./Ph.D. pgm U Kansas

Celina Barba, M.D. Stanford Medical School,

Emergency Room Physician, co-direct, Emergency Department

Rhodelio Cruz, Ph.D. UC Berkeley *

Jeanette Ducut, Ph.D., UCSD, postdoc

Karolin Abedi, Pharmacy School

Rashad Riman, Dental School

Stephanie Gipson, Criminologist

Juan Sosa, Medical School

Melena Grigorian, Phg.D. pgm

Edna Francisco, Science Writer

Liat Attas, Medical School

Talin Haritunians, Ph.D. pgm

Cecil Addy, M.D.

Krystal Jarvis, Laboratory technician*

Linda Brunick, Ph.D. pgm

Monica Londono, Research Associate

Mike Kaliko, Chiropractic pgm *

Maribel Alvarez, Ph.D. pgm UC Irvine

Karineh Petrossian, Ph.D. pgm City of Hope *

Jennifer Nnoli, Ph.D. pgm, Sloan Kettering

Rashad Riman. Dental School

Christine Le, Dental School *

Arjang Naminik, Dental School *

Arbi Keshishian, Dental School *

Evelin Adamian, Dental School

Rabin Ebrahimi, Pharmacy School

Souren Basmadjian, Pharmacy School

Mike Astete, Dental School

Jehan Murugaser, M.D.

Stacy Tanaka, K-12 Teacher

Ignacio Saldain, K-12 Teacher*

Oliver Badali, Cosmetics Scientist

Rowena Bada, Nurse

Azalia Contreras, Community College Instructor *

Pouria Parsa, M.D.

Massoud Agahi, M.D.

Mary Haghi, M.D., Pediatric Endocrinologist

Neema Oroomchi, Medical School

Ardy Khou, Dental School

Sina Samie, Medical School

Anush Margarian, Pharmacy School

Marie Gonzalez, Pharmacy School

Allen Tabibian, M.D., FACC, Cardiologist

Ralph Buoncristiani, D.D.S.

Stephen E. Jones, M.D.

Andy Solkovits, M.D., Assoc. Professor UC Davis

Erica Dent, Master of Health Administration pgm USC

Jenieke Allen, admit.Ph.D. pgm*

Justin Dreyfuss, Ph.D. pgm, USC*

Diana Naderi, admit MD pgm

Brian Idoni, Research Tech II USC*

Margaret Lemell (Aranda), M.D.

Richard Karout, Pharmacy school

Arbi Keshishian, Dental School*,

Tiffany Smith, PA program

Christine Le, Dental School*

Arjang Naminik, Dental School*

William Dalrymple, Osteopathic School of Medicine

Ziba Razinia, Ph.D. Yale, Postodc U Penn*

Earl Sandroff, D.M.D.

Susan Wensel, Monsanto R&D*

Kim Krach, M.D.*

Sokuntheavy So, Research technician

Oliver Badali, Cosmetics industry chemist

Collete Bibayan, admitted 2 pharmacy schools

Vanessa Navarro, M.D., Family Practice San Diego *

Mark Sussman, Ph.D., DISTINGUISHED PROFESSOR SAN DIEGO STATE

Herry Budiyono, Hospital patient analyst*

Claudine Bulan, Cytology Training Program, Wisconsin

Houman Vaghefi, MD, Ph.D, Radiation Oncologist*

Poria Edalat, Dental School

Lauren Michaels, Veterinary School

Basmah Akhter, Pharmacy School

Nareeneh Zadori, Pharmacy School

Eileen Heinrich, Ph.D. UCLA, now staff scientist at City of Hope*

Jordan Vallejo, h.s. summer res 2yrs, Purdue University, mechanical engineering

Niosha Edalat, USC Dental School and Admissions Ambassador

Forooze Rashidi, Instructor College of the Canyons*

Odette Arman, In vitro fertilization clinic embryologist*

Mark Colgin, Clinical laboratory technologist

Drew Edelberg, high school research student, B.S. Berkeley, Ph.D. Program, solid state physics, Columbia University

Maria Atikyan, Masters in nursing program

Alexandra Mokh, Instructor/Professor, LA Valley College*

Pam Klein, M.D., Vice President Clinical Development at Genentech

Tina Askari, research associate*

Hurig Katchikian, medical school*

Marianna Muradyan, pharmacy school USC

Lana Darghali, pharmacy school

Lusineh Mirzakhani, admitted to pharmacy school

Evelyn Adamian, dentist

Ofelya Tonyan, accepted Western University of Health Sciences

Jigar Patel, medical school

Jenieke Allen, Ph.D. program Cedars Sinai*

Krystal Jarvis, teacher*

Hamid Davoudi, college teacher, PA program*

Forooze Rashidi, teacher*

Odette Arman, In vitro fertilization embryologist,*

Ronik Khachatoorian,. Ph.D. UCLA, postdoc UCLA

Mirey Qubrosi, Technical Associate, product testing research

Oryla Wiedoeft, EdD, Teacher, Asst. Principal,

Jouliana Davoudi, Dental school USC*

Debrin Yahya-Kashani, CSUN Nutrition Masters program

Yukiko Kanda, Masters program in social work

John Sobhani, research associate UCLA

Tiffany Smith, PA program* USC Keck School of Medicine

Suprita Singh, Ph.D. program Penn State*

Hye Na Kim, research assistant

Ignacio Saldain, HS teacher*

Jung Suh, Amgen quality control analyst

Krystal Jarvis, Research associate*

Careen Khatchitorian, Ph. D pgm, UC Riverside

Marina Hernandez Vergara, K-12 teacher

Ravneet Gill, MD pgm

Hamid Allatabakhsh, dentist- periodontist

Anita Aloian, Optometry pgm, Western University

Eddie Karabidian, USC Dental School*

Hamid Davoudi, PA program*

Pam Klein, M.D., Oncologist, Head Biotechnology company

Noreen Warner, PA program

Lenny Mayorga, Lenny, USC Dental School

Edmund Petrossian, Med School

Nomiki Kolettis, Ph.D. pgm UC Riverside, now research associate

Yukiko Kanda Petrus, Masters of Social Work pgm CSUN

Anasheh Ghazarian, research technician

Sokunttheavy So, research technician

Hiensen Hiesmantjaja, Med School

Armin Sarkissian, Med School

Ivette Ramos Ortega, med school, 9-19-14, remarkable testimonial sent

Virginia Hutchins Carroll, laboratory manager College of the Canyons *

Samantha Arvizu, technical associate

Mai Phan, csun M.S.pgm, research associate

Gayani Weerasinghe, passed bar, patent attorney

Miriam Golbert, Chair, Biology Department, College of the Cabnyons*

Heghush Aleksanyan, csun M.S. pgm, teaching assoc, medical school

Alex Kandel, law school – Berkeley

Helen Chun, Ph.D. and postdoc UCLA, Assoc.Prof., Chair Biology, CSU Dominguez Hills

Karina Garcia, Ph.D. program, history

Rod Blourtchi, admitted medical school

/PA program

Brandon Wallace, medical school

Samantha Arvizu, technical associate ThermoFisher

Jing Liang, research associate Weizmann Institute*

Shabnam Sorooshiani, dental school

Elizabeth Aquije, UCLA School of Medicine

Carol Chavez, UCSF dental postbac pgm

Magy Eskander, admitted to pharmacy school

Haike Ghazarian, Ph.D. pgm, City of Hope*

Heghush Aleksanyan, medical school*

Ralph Buoncristiani, D.D.S.

Mona Kelvani, admitted to pharmacy school

Carol Chavez, accepted Roseman Dental School, Utah

Nomiki Kolettis, Research Associate Genentech

Anasheh Ghazarian, Los Angeles County Sheriff's
Crime Lab technologist program

Destinney Cox, accepted CSUN Biology Masters

M. Larijani, emergency room physician

Alice Chalikian Kouyoumdjian, Chiropractor

Sayeh Behnia, admitted to pharmacy school

Mai Phan, Career Protein Chemist*

Jim Bollinger, Dentist

Christina Irikyan, clinical laboratory scientist

Jouliana Davoudi, Dentist, graduated from USC
Dental School*

Bermans Iskandar, pediatric neurosurgeon, University of Wisconsin

John Sobhani, admitted USC Dental School

Haike Ghazarian, Ph.D. City of Hope, Postdoctoral Fellow*

Salmeen Andkhoy, registered nurse

Stacy Tanaka, teacher, Magnet Coordinator, new Medical Magnet at Northridge Middle School.

Jasper Chang, Loma Linda University School of Pharmacy

Karen Pastrano, accepted UC San Francisco and Pittsburgh Schools of Dentistry and Pittsburgh Ph.D. program

Jenieke Allen, Ph.D. *

Justin Dreyfuss admitted Rosalind Franklin, Medical School*

Massoud Agahi, M.D. Vascular Surgeon

Maribel Alvarez, Ph.D

Celina Barba, M.D., Stanford, Co-director Emergency Medicine, Providence St. Joseph Medical Center Burbank, Scholarship donor to CSUN in honor of Dr. Oppenheimer

Raff Khechoumian, accepted Masters pgm Rosalind Franklin University of Medicine and Science

Dayana Tobar, Ventura County Medical Center Residency Program

Karoline Rostamiani, tenure track community college professor

Yun Lee, accepted to pharmacy school

Karoline Rostamiani, tenure track community college professor

Carol Chavez, DMD, Roseman University College of Dental Medicine

Kristel Crocker, Accepted into Clinical Laboratory Scientist Training Program

Byron Aquino, Accepted into Clinical Laboratory Scientist Training Program

Regie Canta, Accepted into Clinical Laboratory Science Program
Dominique Evans-Bye, U.S. Presidential Award recipient, high school teacher and superb student research mentor
Arya Saleh, M.D., Internal medicine
Peyman Saadat, M.D., reproductive endocrinologist