

**BIOGRAPHICAL SKETCH**

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NAME: Solow-Cordero, David Edward

eRA COMMONS USER NAME (credential, e.g., agency login): User Name: SOLOW-CORDERO, DAVID  
User ID: DESOLOW

POSITION TITLE: Director, High-Throughput Bioscience Center

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Massachusetts Institute of Technology	B.S.	1986-1990	Biology
University of California at Berkeley	Ph.D.	1990-1995	Molecular and Cellular Biology

**A. Personal Statement**

I have over 20 years of experience in both Biotech and Academia running High-Throughput Screening labs. Since its inception in 2003, I have been running the Stanford University High-Throughput Bioscience Center (HTBC), whose mission is to provide researchers with the ability to run high-throughput chemical, siRNA, cDNA, and high-content screens for the purpose of drug and/or target discovery, and to automate processes involved with Next Generation Sequencing in collaboration with the Stanford Functional Genomics Facility. The HTBC is a Stanford University School of Medicine core facility and was created by the Department of Chemical and Systems Biology (formerly Molecular Pharmacology). The HTBC is also a shared resource for the Stanford Cancer Institute. The HTBC has the capability to run fully automated high-throughput screens for both cell-based and enzyme/protein based screens and even can run fully automated high-content screens. I manage all the day-to-day operations of the HTBC including acting as project manager for all screens, maintaining the databases and servers, experimental design, development, validation and testing, robotic programming, and all decision making on major instrumentation purchases as well as all financial matters. Under my leadership, projects performed in the HTBC have resulted in over 100 publications, dozens of patent applications, and a few start up Biotech companies. Discoveries in the HTBC have also been featured on NPR and on the front page of the San Francisco Chronicle.

Expertise: High-Throughput Screening, Drug Discovery, Assay Development, Laboratory Automation, siRNA Screening, High-Content Screening, Data Analysis, Cheminformatics

- Matheny CJ, Wei MC, Bassik MC, Donnelly AJ, Kampmann M, Iwasaki M, Piloto O, Solow-Cordero DE, Bouley DM, Rau R, Brown P, McManus MT, Weissman JS, Cleary ML. Next-Generation NAMPT Inhibitors Identified by Sequential High-Throughput Phenotypic Chemical and Functional Genomic. Chem Biol. 2013 Nov 21;20(11):1352-63. Epub 2013 Oct 31. PMID: 24183972
- Chan, D.A., Sutphin, P.D., Nguyen, P., Turcotte, S., Lai, E.W., Banh, A., Reynolds, G.E., Chi, J.T., Wu, J., Solow-Cordero, D.E., Bonnet, M., Flanagan, J.U., Bouley, D.M., Graves, E.E., Denny, W.A., Hay, M.P., Giaccia, A.J. Targeting GLUT1 and the Warburg Effect in Renal Cell Carcinoma by Chemical Synthetic Lethality. Sci Transl Med. Aug 3;3(94):94ra70 (2011). PMID: 21813754

- Paulsen, R.D., Soni, D.V., Wollman, R., Hahn, A.T., Yee, M.C., Guan, A., Hesley, J.A., Miller, S.C., Cromwell, E.F., Solow-Cordero, D.E., Meyer, T., Cimprich, K.A. A Genome-wide siRNA Screen Reveals Diverse Cellular Processes and Pathways that Mediate Genome Stability. Mol. Cell 35(2): 228-239 (2009). PMID: 19647519

## **B. Positions and Honors**

### **Positions and Employment**

- |           |   |
|-----------|---|
| 1986      | Lab Technician, Bayer, Inc. Elkhart IN  |
| 1987      | Research Assistant, Bayer, Inc. Elkhart, IN   |
| 1988-1990 | Undergraduate Researcher, Prof. Anthony J. Sinskey, MIT, Dept. of Biology   |
| 1990-1995 | Graduate Student, Prof. Michael J. Chamberlin, University of California at Berkeley, Dept. of Molecular and Cellular Biology    |
| 1995-1999 | Scientist, Head of Screening, FibroGen, Inc. South San Francisco, CA  |
| 1999-2003 | Principal Scientist, High Throughput Screening (HTS) and Informatics, Ceretek, LLC. South San Francisco, CA                     |
| 2003-     | Director, High-Throughput Bioscience Center (HTBC), Stanford University School of Medicine, Dept. of Chemical & Systems Biology |

### **Honors and Awards**

- |                     |   |
|---------------------|---|
| 1986-1987           | National Hispanic Scholar, MIT  |
| 1991-1992           | University Fellowship, University of California at Berkeley   |
| 2005-2007<br>& 2010 | Study Section, Solicitation of Assays for High Throughput Screening (HTS) in the Molecular Libraries Screening Centers Network (NIH, MLSCN)         |
| 2006-2007           | Member, Education Committee, Society for Biomolecular Sciences (SBS)  |
| 2009                | Study Section, Instrumentation and Systems Development, Bioengineering Sciences & Technologies Integrated Review Group, Temporary Member (NIH, CSR) |
| 2009                | Study Section, Assay Development for High-Throughput Molecular Screening (NIH)  |

## **C. Contribution to Science**

- After obtaining my Ph.D. from UC Berkeley where I studied the mechanism of RNA polymerase, I went to work for two startup Biotechnology companies. At these companies I first learned about High-Throughput Screening technologies. At FibroGen, I was responsible for setting up the cheminformatic database and the HTS lab. My work there resulted in two publications involving the regulation and discovery of inhibitors of bone morphogenetic protein-1/procollagen C-proteinase. I then became the first employee at Ceretek, where my responsibilities included beginning all operations and establishing the screening group, including purchasing all the instrumentation and creating and maintaining the cheminformatics databases. Our work at Ceretek led to over a dozen patent applications on modulators of Edg receptors (G-protein coupled receptors).
  - Lee, S., Solow-Cordero, D.E., Kessler, E., Takahara, K., and Greenspan, D.S. Transforming growth factor-b regulation of bone morphogenetic protein-1/procollagen C-proteinase and related proteins in fibrogenic cells and keratinocytes. *J. Biol. Chem.* 272: 19059-19066 (1997). PMID: 9228090
  - Turtle, E., Chow, N., Yang, C., Sosa, S., Bauer, U., Brenner, M., Solow-Cordero, D., Ho, W.B. Design and synthesis of procollagen C-proteinase inhibitors. *Bioorg Med Chem Lett.* 2012 Dec 15;22(24):7397-401. doi: 10.1016/j.bmcl.2012.10.067. Epub 2012 Oct 24. PMID: 23134659

### **Patent Applications**

- G Shankar, D Solow-Cordero, J Spencer, C Gluchowski. Moderation cellular gene expression; antiproliferative agents; anticancer agents. US Patent App. 10/760,061

- b. G Shankar, D Solow-Cordero, J Spencer, C Gluchowski. Edothelial differentiation gene modulation; controlling cell proliferation; anticancer agents. US Patent App. 10/760,063
- c. D Solow-Cordero, G Shankar, J Spencer, C Gluchowski. Controlling cell gene expression; moderate cell proliferation; anticancer agents; antiinflammatory agents; cardiovascular disorders; autoimmune disease. US Patent App. 10/621,966
- d. D Solow-Cordero, G Shankar, J Spencer, C Gluchowski. Contacting a cell expressing the Edg-2 receptor with an amount of an modulator of the Edg-2 receptor sufficient to modulate the Edg-2 receptor mediated biological activity. US Patent App. 10/759,992

One issued US Patent:

- a. Solow-Cordero, D. Shankar, G., J.V. Spencer, and C. Gluchowski. Methods of treating conditions associated with an Edg-3 receptor. 7,208,502 April 24, 2007.

2. I returned to academia in 2003 to start the High-Throughput Bioscience Center (HTBC) at Stanford University. I set up all the screening operations, allowing Stanford researchers to perform high-throughput small molecule screens, whole human genome siRNA knockdown screens, and high-content imaging screens. Over 40 different Principal Investigators have run over 100 high-throughput screens in which I was responsible for assay design, programming the robots, managing the screen, performing the data analysis, and designing and performing the retest and dose response assays of the hits. Over 95 publications have resulted from usage of the HTBC and several publications in which I was a co-author are presented below as well as several patent applications and one issued patent.

- a. Bender KO, Garland M, Ferreyra JA, Hryckowian AJ, Child MA, Puri AW, Solow-Cordero DE, Higginbottom SK, Segal E, Banaei N, Shen A, Sonnenburg JL, Bogyo M. A small-molecule antivirulence agent for treating *Clostridium difficile* infection. *Sci Transl Med*. 2015 Sep 23;7(306):306ra148. doi: 10.1126/scitranslmed.aac9103. Epub 2015 Sep 23. PubMedID: 26400909
- b. Spiekerkoetter E, Tian X, Cai J, Hopper RK, Sudheendra D, Li CG, El-Bizri N, Sawada H, Haghghat R, Chan R, Haghghat L, de Jesus Perez V, Wang L, Reddy S, Zhao M, Bernstein D, Solow-Cordero DE, Beachy PA, Wandless TJ, Ten Dijke P, Rabinovitch M. FK506 activates BMPR2, rescues endothelial dysfunction, and reverses pulmonary hypertension. *J Clin Invest*. 2013 Aug;123(8):3600-13. doi: 10.1172/JCI65592. Epub 2013 Jul 15. PMID: 23867624
- c. Chan, C.T., Reeves, R.E., Geller, R., Yaghoubi, S.S., Hoehne, A., Solow-Cordero, D.E., Chiosis, G., Massoud, T.F., Paulmurugan, R., Gambhir, S.S. Discovery and validation of small-molecule heat-shock protein 90 inhibitors through multimodality molecular imaging in living subjects. *Proc Natl Acad Sci U S A*. Sep 11;109(37):E2476-85. Epub Aug15 (2012). PMID: 22895790

Patent Applications

- a. C Chan, SS Gambhir, DE Solow-Cordero, A Hoehne, R Paulmurugan. Multi-modality molecular imaging high-throughput assay for identifying heat shock protein 90 (hsp90) inhibitors. US Patent App. 13/898,637

One issued US Patent:

- a. E Spiekerkoetter, M Rabinovitch, PA Beachy, D Solow-Cordero. Use of FK506 for the Treatment of Pulmonary Arterial Hypertension. 9,474,745 October 25, 2016

### 3. Additional Publications

- a. Pothineni VR, Wagh D, Babar MM, Inayathullah M, Watts RE, Kim KM, Parekh MB, Gurjarpadhye AA, Solow-Cordero D, Tayebi L, Rajadas J. Screening of NCI-DTP library to identify new drug candidates for *Borrelia burgdorferi*. *J Antibiot (Tokyo)*. 2016 Nov 9. doi: 10.1038/ja.2016.131. [Epub ahead of print]. PubMedID: 27826144
- b. Jiang D, Tam A, Alagappan M, Hay MP, Gupta A, Kozak M, Solow-Cordero DE, Lum PY, Denko N, Giaccia AJ, Le QT, Niwa M, Koong AC. Acridine Derivatives as Inhibitors of the IRE1 $\alpha$ -XBP1

Pathway Cytotoxic to Human Multiple Myeloma. *Mol Cancer Ther.* 2016 Jun 15. DOI: 10.1158/1535-7163.MCT-15-1023. [Epub ahead of print]. PMID: 27307600

- c. Pothineni VR, Wagh D, Babar MM, Inayathullah M, Solow-Cordero D, Kim KM, Samineni A, Parekh M, Tayebi L, Rajadas J. Identification of new drug candidates against *Borrelia burgdorferi* using high-throughput screening. *Drug Design, Development and Therapy.* 2016 Apr 1; 10: 1307–1322. doi:10.2147/DDDT.S101486. PMID: 27103785
- d. Mitton B, Hsu K, Dutta R, Tiu BC, Cox N, McLure KG, Chae HD, Smith M, Eklund EA, Solow-Cordero DE, Sakamoto KM. Small molecule screen for inhibitors of expression from canonical CREB response element-containing promoters. *Oncotarget.* 2016 Feb 23;7(8):8653-62. doi: 10.18632/oncotarget.7085. [Epub ahead of print]. PMID: 26840025
- e. Alli E, Solow-Cordero D, Casey SC, Ford JM. Therapeutic targeting of BRCA1-mutated breast cancers with agents that activate DNA repair. *Cancer Res.* 2014 Nov 1;74(21):6205-15. Epub 2014 Sep 12. PMID: 25217519
- f. Fan-Minogue H., Bodapati S., Solow-Cordero D.E., Fan A., Paulmurugan R., Massoud T., Felsher D.W., Gambhir S.S. A c-Myc activation sensor-based high throughput drug screening identifies an anti-neoplastic effect of Nitazoxanide. *Mol Cancer Ther.* 2013 Sep;12(9):1896-905. doi: 10.1158/1535-7163.MCT-12-1243. Epub 2013 Jul 3. PMID: 23825064
- g. Papandreou, I., Denko, N.C., Olson, M., Van Melckebeke, H., Lust, S., Tam, A., Solow-Cordero, D.E., Bouley, D.M., Offner, F., Niwa, M., Koong, A.C. Identification of an Ire1alpha endonuclease specific inhibitor with cytotoxic activity against human multiple myeloma. *Blood* Jan 27;117(4):1311-4 (2011). Epub Nov 16 (2010). PMID: 21081713
- h. Hyman, J., Firestone, A., Heine, V., Zhao, Y., Ocasio, C., Han, K., Sun, M., Rack, P., Sinha, S., Wu, J., Solow-Cordero, D., Jiang, J., Rowitch, D., and Chen, J. Small-molecule inhibitors reveal multiple strategies for Hedgehog pathway blockade. *Proc.Natl.Acad.Sci.USA.* Aug 18;106(33):14132-7. Epub Aug 5 (2009). PMID: 19666565
- i. Chan C.T., Paulmurugan R., Reeves R.E., Solow-Cordero D., Gambhir S.S. Molecular Imaging of Phosphorylation Events for Drug Development. *Mol Imaging Biol.* May-Jun;11(3): 144-58 (2009). Epub Dec 2 (2008). PMID: 19048345
- j. Altmann, C.R., Solow-Cordero, D.E., Chamberlin, M.J. RNA cleavage and chain elongation by *Escherichia coli* DNA-dependent RNA polymerase in a binary enzyme-RNA complex. *Proc. Natl. Acad. Sci. USA.* 91: 3784-3788 (1994). PMID: 7513426
- k. Archer, J.A., Solow-Cordero, D.E., Sinskey, A.J. A C-terminal deletion in *Corynebacterium glutamicum* homoserine dehydrogenase abolishes allosteric inhibition by l-threonine. *Gene.* 107: 53-59 (1991). PMID: 1743520

#### List of 100+ Publications from the HTBC:

<http://htbc.stanford.edu/papers.html>

#### D. Research Support

##### Ongoing Research Support

NIH/NCI 5P30CA124435 (Beverly Mitchell-PI)

06/04/2007 - 05/31/2021

Stanford Cancer Institute

The major goal of this project is to build on institutional strengths in both technology development and translational research to foster interdisciplinary collaborations amongst eight programs: Cancer Biology, Radiation Biology, Cancer Stem Cells, Cancer Imaging and Early Detection, Translational Oncology, Lymphoma & Leukemia, Immunology and Immunotherapy of Cancer and Population Science. Shared resources support the investigations in experimental and clinical research.

##### Completed Research Support

None