

DAVID E. SOLOW-CORDERO, Ph.D.
Director, High-Throughput Bioscience Center (HTBC)
Department of Chemical & Systems Biology
Stanford University School of Medicine

EDUCATION:

Ph.D., 1995, Department of Molecular and Cellular Biology
University of California at Berkeley
Thesis Title: *In vitro* Analysis of Rifampicin Resistant *Escherichia coli* RNA
Polymerases
Michael J. Chamberlin, Professor
University Fellowship, September 1991 to July 1992

BS, 1990, Department of Biology
Massachusetts Institute of Technology
Anthony J. Sinskey, Professor
National Hispanic Scholar, September 1986 to May 1987

EMPLOYMENT HISTORY:

Stanford University School of Medicine
Department of Chemical & Systems Biology
Director, High-Throughput Bioscience Center (HTBC)
September 2003 to Present

Responsibilities include:

- Select, purchase, program, and maintain laboratory robotics and detection systems including a fully automated Caliper Life Sciences (now part of Perkin Elmer) Staccato cell based High-Throughput Screening system (SciClone ALH3000, Twister II, automated incubator), fully automated systems from Velocity11 (now Agilent); Bravo and VPrep/BenchCel systems and Beckman BiomekFX used primarily for siRNA HTS and Next Generation Sequencing (NGS) automation, a fully automated High Content Screening system from ThermoFisher (Catalyst Robot) integrated to a Molecular Devices ImageXpress Micro, and the microplate detection systems from Molecular Devices; AnalystGT and Flexstation 384, and Tecan; Infinite M1000 and Infinite M1000 PRO.
- Select and purchase chemical libraries to be used for screening.
- Identify and manage research collaborations with Stanford faculty and students to incorporate high-throughput technologies in their research programs including an ongoing collaboration with the Stanford Functional Genomics Core to automate the processes involved in NGS.
- Build, develop and manage the ORACLE based MDL cheminformatics data systems (ChemBioAE, Plate Manager and Assay Explorer).
- Schedule and manage HTBC group including Scientists and Research Associates. Oversee all financial and administrative tasks of the HTBC, a Stanford service center, using iLab Solutions.
- Manage human and mouse whole genome RNA interference screens
- Stanford University representative to the RNAi Global Initiative.

Ceretek, LLC., South San Francisco, CA
Principal Scientist, High Throughput Screening (HTS) and Informatics
June 1999 to September 2003

Responsibilities include:

- Design, develop, scale-up, and validate G-Protein Coupled Receptor assays for HTS
- Select, purchase, program, and maintain laboratory robotics including a Molecular Devices FLIPR384 and a Beckman Multimek.
- Select and purchase chemical libraries to be used for HTS.
- Schedule and manage HTS group including Scientists and Research Associates.
- Manage collaborations with chemists and biologists concerning screening data and lead identification.
- Build, develop and manage MDL cheminformatics data system (ISIS Base/Host and ORACLE).

FibroGen, Inc., South San Francisco, CA
Scientist, Enzymology
July 1995 to June 1999

Responsibilities include:

- Design, develop, and scale-up assays for HTS
Including, characterization and purification of procollagen/collagen processing enzymes, development of robust scaleable assay to aid in the discovery of novel inhibitors of fibrosis.
- Select, purchase, program, and maintain laboratory robotics.
- Schedule and manage HTS group including Scientists and Research Associates.
- Build, develop and manage MDL cheminformatics data system (ISIS Base/Host and ORACLE).

University of California at Berkeley
Graduate Student
Thesis Advisor: Michael J. Chamberlin, Professor
September 1990 to June 1995

- Research on In vitro analysis of rifampicin resistant E. coli RNA polymerases.

Rotation projects:

- Research on protein membrane translocation in yeast. Randy Schekman, Professor
- Research on enzyme substrate channeling in yeast. Jack Kirsch, Professor

Massachusetts Institute of Technology
Undergraduate Researcher
Advisor: Anthony J. Sinskey, Professor
May 1988 to August 1990

- Research on the allosteric inhibition by threonine on homoserine dehydrogenase in *C. glutamicum*.

Bayer, Inc., Elkhart, Indiana

Research Assistant
May 1987 to August 1987

- Research on *Aspergillus Niger* transformation.

Bayer, Inc., Elkhart, Indiana
Laboratory Assistant
May 1986 to August 1986

HONORS AND AWARDS:

- 1986-1987 National Hispanic Scholar, MIT
1991-1992 University Fellowship, University of California at Berkeley
2005-2007, 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 of 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, MLPCN)

PUBLICATIONS AND PATENTS:

Barnett MJ, Solow-Cordero DE, Long SR. A high-throughput system to identify inhibitors of *Candidatus Liberibacter asiaticus* transcription regulators. Proc Natl Acad Sci U S A. 2019 Sep 3; **116**(36):18009-18014. Epub 2019 Aug 19. PMID: 31427509
PMCID: PMC6731658 DOI: 10.1073/pnas.1905149116

Nitta RT, Bolin S, Luo E, Solow-Cordero DE, Samghabadi P, Purzner T, Aujla PS, Nwagbo G, Cho YJ, Li G. Casein kinase 2 inhibition sensitizes medulloblastoma to temozolomide. Oncogene. 2019 Aug 12. [Epub ahead of print] PMID: 31406250 DOI: 10.1038/s41388-019-0927-y

Chernikova SB, Nguyen RB, Truong JT, Mello SS, Stafford JH, Hay MP, Olson A, Solow-Cordero DE, Wood DJ, Henry S, von Eyben R, Deng L, Gephart MH, Aroumougame A, Wiese C, Game JC, Györfy B, Brown JM. Dynamin impacts homology-directed repair and breast cancer response to chemotherapy. J Clin Invest. 2018 Dec 3; **128**(12):5307-5321. Epub 2018 Oct 29. PMID: 30371505 PMCID: PMC6264728 DOI: 10.1172/JCI87191

Ehrenkauf GM, Suresh S, Solow-Cordero D, Singh U. High-Throughput Screening of *Entamoeba* Identifies Compounds Which Target Both Life Cycle Stages and Which Are Effective Against Metronidazole Resistant Parasites. Front Cell Infect Microbiol. 2018

Aug 17;**8**:276. eCollection 2018. PMID: 30175074 PMCID: PMC6107840 DOI: 10.3389/fcimb.2018.00276

Dannewitz Prosseda S, Tian X, Kuramoto K, Boehm M, Sudheendra D, Miyagawa K, Zhang F, Solow-Cordero D, Saldivar JC, Austin ED, Loyd JE, Wheeler L, Andruska A, Donato M, Wang L, Huebner K, Metzger RJ, Khatri P, Spiekerkoetter E. FHIT, a Novel Modifier Gene in Pulmonary Arterial Hypertension. Am J Respir Crit Care Med. 2019 Jan 1;**199**(1):83-98. PMID: 30107138 PMCID: PMC6353016 DOI: 10.1164/rccm.201712-2553OC

Yang Z, Zhang J, Jiang D, Khatri P, Solow-Cordero DE, Toesca DAS, Koumenis C, Denko NC, Giaccia AJ, Le QT, Koong AC. A Human Genome-wide RNAi Screen Reveals Diverse Modulators that Mediate IRE1 α -XBP1 Activation. Mol Cancer Res. 2018 May;**16**(5):745-753. Epub 2018 Feb 9. PMID: 29440447 PMCID: PMC5932228 DOI: 10.1158/1541-7786.MCR-17-0307.

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). 2017 Mar;**70**(3):308-312. Epub 2016 Nov 9. PMID: 27826144 DOI: 10.1038/ja.2016.131
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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 α -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

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

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. PMID: 26840025 PMCID: PMC4890994 DOI: 10.18632/oncotarget.7085

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, Bogoyo 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. PMID: 26400909

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

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

Spiekerkoetter E, Tian X, Cai J, Hopper RK, Sudheendra D, Li CG, El-Bizri N, Sawada H, Haghighat R, Chan R, Haghighat 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

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

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

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 Aug 15 (2012). PMID: 22895790

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

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

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

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

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

Solow-Cordero, D.E. Academia catching up to industry: How liquid handling is enhancing basic research. G.I.T. Laboratory Journal **3-4**: 64-65 (2007).

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

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

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

Twelve filed US patent applications:

11 Patent Applications: D Solow-Cordero, G Shankar, J Spencer, C Gluchowski. Methods of treating conditions associated with an EDG-1, Edg-2, Edg-3, Edg-4, or Edg-7 receptors . US Patent App. 20040147562, 20040167132, 20040167185, 20040167181, 20040167185, 20040167192, 20040192739, 20050065194, 20050101518, 20050113283, and 20050261298

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. 20130310347

US Patent App. 20140135358

Two issued US Patents:

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,

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,

Three International patent applications:

Shankar, G., Solow-Cordero, D., J.V. Spencer, and C. Gluchowski. Methods of treating conditions associated with an EDG receptor. WO 2003/062392, July 31, 2003. (EP1513522)

Solow-Cordero, D., Shankar, G., J.V. Spencer, and C. Gluchowski. Methods of treating conditions associated with an EDG-1 receptor. WO 2004/009816, January 29, 2004. (EP1523556)

Spiekerkoetter, E., Rabinovitch, M., Beachy, P.A., and D. Solow-Cordero. Use of FK506 for the treatment of pulmonary arterial hypertension. WO 2012/151153, April 30, 2012.

INVITED LECTURES:

Laboratory Robotics Interest Group (LRIG)-Bay Area Meeting: Current Bottlenecks in Laboratory Automation
15 March 2005, Burlingame, California

Society for Biomedical Screening (SBS) West Coast Regional Meeting: Exploiting the Druggable Genome:
21-22 April 2005, San Mateo, California

Elsevier MDL Biology Data Management Exchange
5-6 May 2005, Scottsdale, Arizona

RNAiGlobal-Dharmacon
25-26 September 2006, Amsterdam, The Netherlands

RNAiGlobal-ThermoFisher
12-13 April 2007, Boulder, Colorado
27-28 September 2007, Barcelona, Spain
2-4 April 2008, Boston, Massachusetts
22-23 September 2009, Dublin, Ireland

Academic Drug Discovery Consortium: Drug Discovery in Academia: Recent Successes and Emerging Opportunities
7 April 2016, San Diego, California

TEACHING

University of California at Berkeley
September to December 1994, Instructor for Undergraduate Seminar: Novel Reactions in Transcription Regulation (MCB 119)
January to May 1993, Teaching Assistant for Introduction to Biology (MCB 15)
November 1991 to February 1992, Teaching Assistant for Biochemistry Lab (MCB 110L)

Stanford University

20 April 2005, Guest Lecturer, Drug Discovery (MolPharm 240)

11 Feb 2016, Guest Lecturer, Translational Research and Applied Medicine (MED 221)

ASSOCIATIONS

Laboratory Robotics Interest Group (LRIG)

Society for Laboratory Automation and Screening (SLAS)

AAAS