

Dr. Roberto Bolli was Chief of the Division of Cardiovascular Medicine at the University of Louisville for 26 years, from 1994-2020. He is Professor of Medicine, Physiology and Biophysics; Director of the Institute of Molecular Cardiology (IMC); Distinguished University Scholar; and the Jewish Hospital Distinguished Chair in Cardiology. He has delivered 339 lectures and published >460 papers, and has an h-factor of 103. He has risen to leadership positions in major cardiovascular societies. His award and honors are too numerous to list. Starting from zero, Dr. Bolli has built the IMC - an internationally acclaimed research program in cardiovascular medicine that has brought to UofL >120 million in extramural federal funding and has become a leading research institute worldwide. Over the past 20 years, Dr. Bolli's research has focused on the use of cell therapy to repair injured myocardium. He has made seminal contributions to the field of regenerative cardiology, where he is a leader. He was the first to show that, contrary to commonly-accepted ideas, cardiac progenitor c-kit+ cells do not engraft in the heart and, therefore, work via paracrine actions – a concept that has changed our understanding of cell therapy. He currently leads a Clinical Center of the NIH-funded network, CCTRN, where he is PI in two clinical trials: CONCERT-HF (Combination Of meseNchymal and c-kit+ Cardiac stem cells as Regenerative Therapy for Heart Failure) and SENECA (StEm cell iNjEction in CAncer survivors). He also leads a very busy basic laboratory that is developing new progenitor cells and is working on novel strategies to enhance the effectiveness of cell therapy for ischemic cardiomyopathy in mouse, rat, and pig models.

1. Bolli R, Hare JM, March K, Pepine CJ, Willerson JT, Perin EC, Yang P, Henry TD, Traverse J, Mitrani R, Khan A, Schulman I, Taylor D, Vojvodic RW, Sayre SL, Bettencourt J, Cohen M, Ebert RF, Moyer L, Simari R, for the Cardiovascular Cell Therapy Research Network (CCTRN). Rationale and design of the CONCERT-HF (Combination Of meseNchymal and c-kit+ Cardiac stEm cells as Regenerative Therapy of Heart Failure) trial. *Circ Res* 122:1703-1715, 2018.

2. Bolli R, Hare JM, Henry TD, Lenneman CG, March K, Miller K, Pepine CJ, Perin ED, Traverse JH, Willerson JT, Yang PC, Gee AP, Lima JA, Moyer L, Vojvodic RW, Sayre SL, Bettencourt J, Cohen M, Ebert RF, Simari R, for the Cardiovascular Cell Therapy Research Network (CCTRN). Rationale and design of the SENECA (StEm cell iNjEction in cAncer survivors) trial. *Am Heart J* 201:54-62, 2018.

3. Wysoczynski M, Guo Y, Moore J IV, Muthusamy S, Li Q, Nasr M, Li H, Nong Y, Wu W, Tomlin A, Zhu X, Hunt G, Gumpert A, Book M, Khan A, Tang XL, **Bolli R**. A new population of cardiac mesenchymal cells isolated on the basis of adherence: Phenotype and reparative properties. *J Am Coll Cardiol* 69:1824-1838, 2017.

4. Tokita Y, Tang XL, Li Q, Wysoczynski M, Hong KU, Bolli RA Jr., Nakamura S, Wu WJ, Xie W, Li D, Hunt G, Ou Q, Stowers H, **Bolli R**. Repeated administrations of cardiac progenitor cells are markedly more effective than a single administration: A new paradigm in cell therapy. *Circ Res* 119:635-651, 2016.

5. Khan AR, Farid T, Pathan A, Tripathi A, Ghafghazi S, Wysoczynski M, **Bolli R**. Impact of cell therapy on myocardial perfusion and cardiovascular outcomes in patients with angina refractory to medical therapy: A systematic review and meta-analysis. *Circ Res* 118:984-993, 2016.

Dr. Mohamed laboratory focuses on molecular cardiology, drug screening, cardiac regeneration and epigenetics. Dr. Mohamed studied novel mechanisms and therapies for cardiac hypertrophy and heart failure. His research in the recent years had major impact on two approaches for endogenous heart repair: direct cardiac reprogramming and inducing cardiomyocyte proliferation. Both approaches were highly successful. Direct reprogramming approach was the nucleus for an emerging start-up (Tenaya Therapeutics) where he was the first scientist recruited to the company to lead the efforts of direct cardiac reprogramming. Where he enjoyed the unique industry experience in building a start up from scratch. Due to the quick success in Tenaya, which just raised ~\$100 million to start clinical trials, the research and development section ended very soon and now the major focus on scaling up viral manufacturing and filing IND which is away from his interest. Therefore, he decided to go back to academia to initiate new discovery programs for heart failure therapy mainly focusing on understanding the regulation of cardiomyocyte proliferation. Most recently, his laboratory established a novel system for long term culture of human and pig heart slices and efficiently demonstrating the efficacy of direct cardiac reprogramming in such pre-clinical models (Ou et al., *Circulation Research*, 2019).

1. Ou Q., Jacobson Z., Abouleisa R., Tang X., Hindi S., Kumar A., Ivey K., Giridharan G., Al-Baz A., Brittian K., Rood B., Lin Y., Watson S., Perbellini F., McKinsey T., **Hill B.**, Jones S., Terracciano C., Bolli R., **Mohamed T.**

A Physiological Biomimetic Culture System for Pig and Human Heart Slices.

Circulation Research 2019 Aug 30;125(6):628-642.

2. **Mohamed T.**, Ang Y., Radzinsky E., Zhou P., Huang Y., Efenbein A., Foley A., Magnitsky S., Srivastava D. Regulation of Cell Cycle to Stimulate Adult Cardiomyocyte Proliferation and Cardiac Regeneration.

Cell, 2018 Mar 22;173 (1):104–116

3. **Mohamed T.**, Stone N., Radzinsky E., Yu P., Huang Y., Wang H., Ding S., Srivastava D. Chemical Enhancement of Direct Cardiac Reprogramming In Vitro and In Vivo.

Circulation. 2017 Mar 7;135(10):978-995.

4. Ang Y., Rivas R., Ribeiro A., Srivas R., Rivera R., Stone N., Pratt K., **Mohamed T.**, Fu J., Spencer I., Tippens N., Li M., Narasimha A., Radzinsky E., Moon-Grady A., Yu H., Pruitt B., Snyder M., Srivastava D. Disease Model of GATA4 Mutation Reveals Transcription Factor Cooperativity in Human Cardiogenesis.

Cell. 2016 Dec 15;167(7):1734-1749.e22