

# Daniel Yong Yoo

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## EDUCATION

**NEW YORK UNIVERSITY** | Graduate School of Arts and Sciences | Ph.D. Chemistry | Bioorganic Chemistry Track | Dec 2020

**NEW YORK UNIVERSITY** | Tandon School of Engineering | M.S. Biomedical Engineering | Biomaterials Track | May 2013

**UNIVERSITY OF CALIFORNIA, BERKELEY** | College of Engineering | B.S. Bioengineering | Cell and Tissue Engineering Track | May 2009

## RESEARCH EXPERIENCE

01/21 – Present **VOIGT LAB** | Cambridge, MA

*Postdoctoral Associate – Massachusetts Institute of Technology – Department of Biological Engineering*

- PI: Professor Christopher Voigt
- Engineering human skin commensal bacteria to degrade or convert volatile mosquito attractants from the human skin metabolome

09/13 – 12/20 **ARORA LAB** | New York, NY

*Ph.D./Graduate Student Researcher - New York University - Graduate School of Arts and Sciences – Department of Chemistry*

- PI: Professor Paramjit Arora
- Doctoral thesis: Peptidomimetic-based strategies for targeting oncogenic Ras
- Targeting protein-protein interfaces of oncogenic systems with coiled helix dimers
- Macropinocytic uptake profiling of diverse peptidomimetic scaffolds in Ras mutant cancer cell lines
- Inhibition of kinases with multivalent peptidomimetics and repurposed small molecule ATP analogues

09/11 – 09/13

**COELHO LAB** | New York, NY

*M.S./Graduate Student Researcher - New York University - College of Dentistry - Department of Biomaterials and Biomimetics*

- PI: Professor Paulo Coelho; direct supervision under Adjunct Professor Nick Tovar
- Master's thesis: Efficacy and viability analysis of BMP-2 coated titanium implants within a sheep iliac model
- Supervised and trained other graduate/dental students and visiting scholars in laboratory techniques and equipment
- Managed/assisted in multiple projects ranging from bone grafts, synthetic scaffolds, and dental implants within a variety of animal models (i.e. monkey, dog, rabbit, sheep, and human)

06/09 – 07/11

**STAINIER LAB** | San Francisco, CA

*Staff Research Associate I - University of California, San Francisco - Department of Biochemistry and Biophysics*

- PI: Professor Didier Y. Stainier; direct supervision under postdoctoral fellows Dr. Olov Andersson and Dr. Donghun Shin
- High-throughput *in vivo* small molecule screen for  $\beta$ -cell regeneration in transgenic zebrafish models
- Positional cloning analysis of the *Slurpee* zebrafish mutant
- Mentored an undergraduate researcher from UC Berkeley in both positional cloning and chemical screens

02/07 – 06/09

**LEE LAB** | Berkeley, CA

*Undergraduate Researcher - University of California, Berkeley – College of Engineering - Department of Bioengineering*

- Biomolecular Polymer Opto-Electronic Technology and Science (BioPOETS) group led by Professor Luke P. Lee; direct supervision under graduate student Eunice Lee
- Multi-functional nanotube viability analysis and application for the ERBB2 (HER2/neu) receptor
- Gene regulation and protein translation via optical excitation of gold nanoplasmonic particle carriers for selective release of antisense oligonucleotide payloads

## TEACHING EXPERIENCE

01/14 – 12/15

**NEW YORK UNIVERSITY** | New York, NY

*Adjunct Instructor – New York University – Department of Chemistry*

- General Chemistry I Recitation/Laboratory Instructor (Professor Zhihua An)
- Organic Chemistry I Recitation/Laboratory Instructor (Professor Lara Mahal, Dr. John Henssler)
- Organic Chemistry II Laboratory Instructor (Dr. Petra Tosovska)
- Biochemistry I Recitation Instructor (Professors Paramjit Arora, Nate Traaseth, and Neville Kallenbach)

## HONORS AND AWARDS

NOV 2018

**2019 MEDICINAL AND BIOORGANIC CHEMISTRY FOUNDATION SCHOLAR** | 2019 MBCF Conference

APR 2016

**OUTSTANDING TEACHING AWARD** | NYU College of Arts and Sciences | New York, NY

09/13 – 12/15

**MACCRACKEN FELLOWSHIP** | NYU Graduate School of Arts and Sciences | New York, NY

09/12 – 05/13

**INES MANDL FELLOWSHIP** | NYU Polytechnic School of Engineering | New York, NY

09/11 – 05/13

**GRADUATE CENTER MERIT SCHOLARSHIP** | NYU Polytechnic School of Engineering | New York, NY

## TECHNICAL SKILLS

LABORATORY TECHNIQUES			PROGRAMMING		OTHER
2D and 3D Cell Culture	Polymerase Chain Reaction	Microfluidic Device Fabrication w/ PDMS	ApE	Adina	Spoken Korean Written Latin
Nanoparticle Synthesis	Western/Northern Blot	SDS-PAGE/Agarose Gel Electrophoresis	AutoCad	Amira	
UV Spectroscopy	Flow Cytometry/FACS	Variable Filter Microscopy and Imaging	FlowJo	Comsol	
Protein Expression	Histology/Histomorphometry	Fluorescent/AFM/SEM Microscopy	ImageJ	Matlab	
Animal Surgeries	Micro-Computerized Tomography	EEG/ECG/EMG/Blood Glucose Tests	InstantJChem	Perl	
Mechanical Stress Testing	Confocal Microscopy	Fourier Transform Infrared Spectrometry	R	FlexPDE	
Nanoindentation	X-ray Diffraction Spectroscopy	High-performance Liquid Chromatography	SolidWorks	DraftSight	
Organic/Peptide Synthesis	NMR Spectrometry	High-throughput Chemical Assays	PyMol	UCSF Chimera	
Cell Viability Assays	Intact Protein MS	Plasmid/Vector Cloning/Transfection	ChemDraw	MacroModel	

## MEMBERSHIPS

- 03/16 – 12/21      **AMERICAN CHEMICAL SOCIETY**
- 04/13 – 04/14      **SOCIETY FOR BIOMATERIALS**
- 10/11 – Present    **NEW YORK ACADEMY OF SCIENCES**

## CONFERENCE PRESENTATIONS

- MAY 2019      **NEW YORK ACADEMY OF SCIENCES** | New York, NY  
*2019 Chemical Biology Discussion Group Year-End Symposium – Poster Submission*
- **Yoo, D.**, Barros, S., Brown, G., Rabot, C., Arora, P.S. “Exploiting the Hunger of Cancer Cells for Peptide Therapeutics.”
- JAN 2019      **2019 MEDICINAL AND BIOORGANIC CHEMISTRY FOUNDATION SCHOLAR** | Steamboat Springs, CO  
*2019 MBCF Conference – Poster Submission*
- **Yoo, D.**, Barros, S., Hauser, A., Joy, S., Bar-Sagi, D., Arora, P.S. “Covalent Targeting of Ras by Rationally Designed Peptidomimetics.”
- SEP 2018      **TRI-INSTITUTIONAL PHD PROGRAM IN CHEMICAL BIOLOGY** | New York, NY  
*The Rockefeller University – Poster Submission – 2<sup>nd</sup> Place Prize*
- **Yoo, D.**, Barros, S., Hauser, A., Joy, S., Bar-Sagi, D., Arora, P.S. “Covalent Targeting of Ras by Rationally Designed Peptidomimetics.”
- AUG 2018      **NATURE CONFERENCE ON CHEMICAL BIOLOGY** | New York, NY  
*New York University – Poster Submission*
- **Yoo, D.**, Barros, S., Hauser, A., Joy, S., Bar-Sagi, D., Arora, P.S. “Covalent Targeting of Ras by Rationally Designed Peptidomimetics.”
- JUN 2018      **GORDON RESEARCH COUNCIL** | Andover, NH  
*Bioorganic Chemistry Symposium – Poster Submission*
- **Yoo, D.**, Hauser, A., Joy, S., Bar-Sagi, D., Arora, P.S. “Covalent Targeting of Ras by Rationally Designed Peptidomimetics.”
- MAY 2018      **NEW YORK ACADEMY OF SCIENCES** | New York, NY  
*2018 Chemical Biology Discussion Group Year-End Symposium – Poster Submission*
- **Yoo, D.**, Joy, S., Arora, P.S. “Covalent Targeting of Ras by Rationally Designed Peptidomimetics.”
- MAY 2016      **NEW YORK ACADEMY OF SCIENCES** | New York, NY  
*2016 Chemical Biology Discussion Group Year-End Symposium – Poster Submission*
- **Yoo, D.**, Joy, S., Arora, P.S. “Covalent targeting of protein-protein interactions by rationally designed peptidomimetics.”
- MAY 2013      **SOCIETY FOR BIOMATERIALS** | Boston, MA  
*Biomaterials Revolution – 2013 Annual Meeting and Exposition – Poster Submission*
- **Yoo, D.**, Anchieta, R.B., Machada, L., Guastaldi, F., Tovar, N., Coelho, P.G. “Osseointegration effect of BMP-2 on dental implants: A 3-6 week in vivo study.”
- MAR 2013      **AMERICAN ASSOCIATION FOR DENTAL RESEARCH** | Seattle, WA  
*LADR/AADR/CADR - 2013 General Session and Exhibition – Conference Paper*
- **Yoo, D.**, Anchieta, R.B., Machada, L., Guastaldi, F., Tovar, N., Coelho, P.G. “Periodontal regeneration using brain-derived neurotrophic factor: A non-human primates study.”
- OCT 2012      **SOCIETY FOR BIOMATERIALS** | New Orleans, LA  
*Grand Challenges in Biomaterials – Poster Submission*
- **Yoo, D.**, Anchieta, R.B., Machada, L., Guastaldi, F., Tovar, N., Coelho, P.G. “Osseointegration effect of BMP-2 on dental implants: A 3-6 week in vivo study.”

## PATENTS

- PENDING      Arora, P.S., Hong, S.H., Yoo, D.Y. “Crosslinked Helix Dimer Mimics of Sos and Methods of Using Same,” U.S. Provisional Pat. App. Ser. No. 63/131,103, filed December 28, 2020.

## JOURNAL PUBLICATIONS

- MAY 2021 Hong, S.H.\*, **Yoo, D.Y.\***, Conway, L., Richards-Corke, K.C., Parker, C.G., Arora, P.S. "A Sos proteomimetic as a pan-Ras inhibitor," *Proc Natl Acad Sci*, 2021, 118(18), pp. 1-11.
- DEC 2020 **Yoo, D.Y.**, Arora, P.S. "Hydrogen bond surrogate stabilized helices as protein-protein interaction inhibitors," *Protein-protein interaction regulators*, London, UK, Royal Society of Chemistry, 2020, pp. 124-146.
- JULY 2020 **Yoo, D.Y.**, Barros, S.A., Brown, G.C., Rabot, C., Bar-Sagi, D., Arora, P.S. "Macropinocytosis as a key determinant of peptidomimetic uptake in cancer cells," *J Am Chem Soc*, 2020, 142(34), pp. 11461-14471.
- MAY 2020 **Yoo, D.Y.**, Hauser, A.D., Joy, S.T., Bar-Sagi, D., Arora, P.S. "Covalent targeting of Ras G12C by rationally designed peptidomimetics," *ACS Chem Bio*, 2020, 15(6), pp. 1604-1612.
- MAR 2016 Bowers, M., **Yoo, D.**, Marin, C., Gil, L., Shabaka, N., Goldstein, M., Janal, M., Tovar, N., Hirata, R., Bonfante, E., Coelho, P.G. "Surface characterization and in vivo evaluation of laser sintered and machined implants followed by resorbable-blasting media process: A study in sheep," *Med Oral Patol Oral Cir Bucal*, 2016, 21(2), pp. 206-213.
- JUL 2015 Sarendranath, A., Khan, R., Marin, C., **Yoo, D.**, Redisch, J., Jimbo, R., Coelho, P.G. "Effect of low speed drilling on osseointegration using simplified drilling procedures," *Brit J Or Max Sur*, 2015, 53(6), pp. 550-556.
- JUN 2015 **Yoo, D.**, Marin, C., Freitas, G., Tovar, N., Bonfante, E., Teixeira, H., Janal, M., Coelho, P.G. "Surface characterization and in vivo evaluation of dual acid-etched and grit-blasted/acid-etched implants in sheep," *Imp Dent*, 2015, 24(3), pp. 256-262.
- MAR 2015 Galli, S., Jimbo, R., Tovar, N., **Yoo, D.**, Achieta, R.B., Yamaguchi, S., Coelho, P.G. "The effect of osteotomy dimension on osseointegration to resorbable media-treated implants: A study in sheep," *J Biomat App*, 2015, 29(8), pp. 1068-1074.
- OCT 2014 Tovar, N., Jimbo, R., Witek, L., Anchieta, R., **Yoo, D.**, Manne, L., Machado, L., Gangolli, R., Coelho, P.G. "The physicochemical characterization and in vivo response of micro/nanoporous bioactive ceramic particulate bone graft materials," *Mat Sci Eng C*, 2014, 43, pp. 472-480.
- MAY 2014 Coelho, P.G., Takayama, T., **Yoo, D.**, Jimbo, R., Karunakaran, S., Tovar, N., Janal, M.N., Yamano, S. "Nanometer-scale features on micrometer-scale surface texturing: A bone histological, gene expression, and nanomechanical study," *Bone*, 2014, 65, pp. 25-32.
- FEB 2014 Shapiro, M., Tovar, N., **Yoo, D.**, Sobieraj, R.C., Gupta, N., Branski, R., Coelho, P. "Strain rate effects on the mechanical properties and fracture mode of skeletal muscle," *Mat Sci Eng C*, 2014, 39(1), pp. 100-104.
- JAN 2014 Jimbo, R., Tovar, N., Janal, M.N., Mousa, R., Marin, C., **Yoo, D.**, Teixeira, H., Anchieta, R.B., Bonfante, E.A., Konishi, A., Takeda, K., Kurihara, H., Coelho, P.G. "The effect of brain-derived neurotrophic factor on periodontal furcation effects," *PLOS One*, 2014, 9(1), pp. 1-9.
- AUG 2013 Tovar, N., Jimbo, R., Gangolli, R., Perez, L., Manne, L., **Yoo, D.**, Lorenzoni, F., Witek, L., Coelho, P.G. "Evaluation of bone response to various anorganic bovine bone xenografts: an experimental calvaria defect study," *Int J Or Max Surg*, 2013, pp. 1-10.
- JUN 2013 **Yoo, D.**, Tovar, N., Jimbo, R., Marin, C., Anchieta, R.B., Machado, L.S., Guastaldi, F.P.S., Janal, M.N., Coelho, P.G. "Increased osseointegration effect of BMP-2 on dental implants: An in vivo study," *J Biomed Mat Res A*, 2013, 102(6), pp. 1921-1927.
- JUN 2013 Jimbo, R., Tovar, N., **Yoo, D.Y.**, Janal, M.N., Anchieta, R.B., Coelho, P.G. "The effect of different surgical drilling procedures on full laser-etched microgrooves surface-treated implants: an experimental study in sheep," *Clin Or Imp Res*, 2013, pp. 1-6.
- NOV 2012 Guastaldi, F.S., **Yoo, D.**, Marin, C., Jimbo, R., Tovar, N., Zanetta-Barbosa, D., Coelho, P.G. "Plasma treatment maintains surface energy of the implant surface and enhances osseointegration," *Int J Biomat*, 2012, pp. 1-6.
- MAY 2012 Andersson, O., Adams, B.A., **Yoo, D.**, Ellis, G.C., Gut, P., Anderson, R.M., German, M.S., Stainier, D.Y.R. "Adenosine signaling promotes regeneration of pancreatic beta cells in vivo," *Cell Metabolism*, 2012, 15(6), pp. 885-894.
- SEP 2009 Lee, S.E., Sasaki, D.Y., Perroud, T.D., **Yoo, D.**, Patel, K.D. and Lee, L.P. "Biologically functional cationic phospholipid-gold nanoplasmonic carriers," *J Am Chem Soc*, 2009, 131(39), pp. 14066-14074.