Stanford | Department of Biology

JOSÉ R. DINNENY

*Associate Professor*
*Director of Graduate Studies*
*HHMI-Simons Faculty Scholar*

**DOB:** May 31st, 1978

## CURRENT AFFILIATIONS

01/18 – present, Associate Professor, Department of Biology, Stanford University

01/18 – present, Visiting Staff Member, Carnegie Institution for Science, Department of Plant Biology

## PREVIOUS AFFILIATIONS

07/11 – 12/17, Staff Member, Carnegie Institution for Science, Department of Plant Biology

05/08 – 10/11, Principal Investigator, Temasek Lifesciences Laboratory, Singapore

05/08 – 2013, Assistant Professor, Department of Biological Sciences, National University of Singapore

## EDUCATION AND TRAINING

10/05 - 05/08, Post-doctoral Fellow, Duke University

09/00 - 09/05, PhD, University of California, San Diego

09/96 - 05/00, BS, Highest Honors, University Of California, Berkeley

## PUBLICATIONS- highlighted research

Dickinson AJ, Lehner K, Mi J, Jia KP, Mijar M, **Dinneny J**, Al-Babili S, Benfey PN. (2019) Beta-Cyclocitral is a conserved root growth regulator. *Proc Natl Acad Sci U S A.* 116(21):10563-10567.

Orosa-Puente B, Leftley N, von Wangenheim D, Banda J, Srivastava AK, Hill K, Truskina J, Bhosale R, Morris E, Srivastava M, Kümpers B, Goh T, Fukaki H, Vermeer JEM, Vernoux T, **Dinneny JR**, French AF, Bishopp A, Sadanandom A, Bennett MJ (2018) Roots branch towards water by post-translational modification of transcription factor ARF7. *Science*

Wu R, Duan L, Pruneda-Paz JL, Oh DH, Pound M, Kay S, **Dinneny JR** (2018) The *6xABRE* synthetic promoter enables the spatiotemporal analysis of ABA-mediated transcriptional regulation. *Plant Physiology DOI: https://doi.org/10.1104/pp.18.00401***

**Highlighted in front matter

Feng W, Kita D, Peaucelle A, Cartwright HN, Doah V, Duan Q, Liu MC, Maman J, Steinhorst L, Schmitz-Thom I, Yvon R, Kudla J, Wu HM, Cheung AY, and **Dinneny JR** (2018) The FERONIA receptor kinase maintains cell wall integrity during salt stress through $Ca^{2+}$ signaling. *Current Biology* 28:5, 666-675**

**Dispatch by Verger and Hamant, Curr Biol. 2018 Mar 5;28(5):R215-R217 and F1000 Prime

Robbins NE and **Dinneny JR** (2018) Growth Is Required for Perception of Water Availability to Pattern Plant Root Branches. *Proc. Natl. Acad. Sci. U. S. A. 1710709115v1-201710709.***

**Recommended by F1000 Prime

Sebastian J, Yee MC, Viana WG, Rellán-Álvarez R, Feldman M, Priest H, Trontin C, Lee T, Jiang H, Baxter I, Mockler TC, Hochholdinger F, Brutnell TP and **Dinneny JR** (2016) Grasses suppress shoot-borne roots to conserve water during drought. *Proc. Natl. Acad. Sci. U. S. A.* 8861–8866, doi: 10.1073/pnas.1604021113**

**Highlighted by the BBC, Recommended by F1000 Prime

Fahlgren N, Bart R, Herrera-Estrella L, Rellán-Álvarez R, Chitwood DH, **Dinneny JR** (2016) Plant scientists: GM technology is safe. *Science* Feb 19;351(6275):824.

Rellán-Álvarez R, Lobet G, Lindner H, Pradier P-L, Sebastian J, Yee MC, Geng Y, Trontin C, LaRue T, Schrager A, Haney C, Nieu R, Maloof J, Vogel JP, **Dinneny JR** (2015) GLO-Roots: an imaging platform enabling multidimensional characterization of soil-grown root systems. *eLife* 2015;10.7554/eLife.07597**

**Highlighted in Nature Methods, SF Gate

Bao Y, Aggarwal P, Robbins II NE, Sturrock CJ, Thompson, MC, Tan HQ, Tham C, Rodriguez PL, Vernoux T, Mooney SJ, Bennett MJ, **Dinneny JR** (*2014*) Plant roots employ a patterning mechanism to position lateral root branches towards available water. *Proc. Natl. Acad. Sci.* Jun 24;111(25):9319-24.**

**Recommended F1000 Prime

Geng Y, Wu R, Wee CW, Xie F, Wei X, Chan PMY, Tham C, Duan L, **Dinneny JR** (2013) A Spatio-Temporal Understanding of Growth Regulation during the Salt Stress Response in Arabidopsis. *Plant Cell* Jun;25(6):2132-54**

**'Spotlight' in *Trends in Plant Science*, 10.1016/j.tplants.2013.08.009

Duan L, Dietrich D, Ng CH, Chan PMY, Bhalerao R, Bennett MJ, **Dinneny JR** (2013) Endodermal ABA signaling promotes lateral root quiescence during salt stress in Arabidopsis seedlings. *Plant Cell* Jan;25(1):324-41**

**'Spotlight' in *Trends in Plant Science*, 10.1016/j.tplants.2013.08.009

**Dinneny JR**, Long TA, Wang JY, Mace D, Pointer S, Barron C, Brady SM, Schiefelbein, JS, Benfey PN (2008) Cell identity mediates the response of Arabidopsis roots to abiotic stress. *Science* May 16;320(5878):942-5**

**'Perspectives' in *Science* 16;320:880-1, 'Research Highlights' in *Nature Genetics* 9, 414

**Dinneny JR**, Yadegari R, Fischer RL, Yanofsky MF, Weigel D (2004) The role of *JAGGED* in shaping lateral organs. *Development* 131, 1101-1110**

**'Previews' in *Developmental Cell* 6(3), 318-319

**PUBLICATIONS- other primary research**

Sechet J, Htwe S, Urbanowicz B, Agyeman A, Feng W, Ishikawa T, Colomes M, Kumar KS, Kawai-Yamada M, **Dinneny** JR, O'Neill MA, Mortimer JC (2018) Suppression of Arabidopsis GGLT1 affects growth by reducing the L-galactose content and borate cross-linking of rhamnogalacturonan-II. Plant J. doi: 10.1111/tpj.14088

Feldman MJ, Paul RE, Banan D, Barrett JF, Sebastian J, Yee MC, Jiang H, Lipka AE, Brutnell TP, **Dinneny JR**, Leakey ADB, Baxter I. (2017) Time dependent genetic analysis links field and controlled environment phenotypes in the model C4 grass Setaria. PLoS Genet. 2017 Jun 23;13(6):e1006841. doi: 10.1371/journal.pgen.1006841. eCollection 2017 Jun.

Pruitt RN, Joe A, Zhang W, Feng W, Stewart V, Schwessinger B, **Dinneny JR**, Ronald PC. (2017) A microbially derived tyrosine-sulfated peptide mimics a plant peptide hormone. New Phytol. 2017 Jul;215(2):725-736. doi: 10.1111/nph.14609. Epub 2017 May 30.

Dietrich D, Pang L, Kobayashi A, Fozard JA, Boudolf V, Bhosale R, Antoni R, Nguyen T, Hiratsuka S, Fujii N, Miyazawa Y, Bae TW, Wells DM, Owen MR, Band LR, Dyson RJ, Jensen OE, King JR, Tracy SR, Sturrock CJ, Mooney SJ, Roberts JA, Bhalerao RP, **Dinneny JR**, Rodriguez PL, Nagatani A, Hosokawa Y, Baskin TI, Pridmore TP, De Veylder L, Takahashi H, Bennett MJ (2017) Root

hydrotropism is controlled via a cortex-specific growth mechanism. Nat Plants. 2017 May 8;3:17057. doi: 10.1038/nplants.2017.57.

Robbins II NE and **Dinneny J**. (2016). A Method to Analyze Local and Systemic Effects of Environmental Stimuli on Root Development in Plants. Bio-protocol 6(17): e1923. http://www.bio-protocol.org/e1923

Sebastian J, Wong MK, Tang E, **Dinneny JR**. (2014) Methods to Promote Germination of Dormant Setaria viridis seeds. *PLoS One* 18;9(4):e95109

Wang PL, Bao Y, Yee MC, Barrett SP, Hogan GJ, Olsen MN, **Dinneny JR**, Brown PO, Salzman J. (2014) Circular RNA is expressed across the eukaryotic tree of life. *PLoS One.* 7;9(3):e90859

Emami, S, Yee MC, **Dinneny JR** (2013) A robust family of Golden Gate Agrobacterium vectors for plant synthetic biology. *Front. Plant Sci.* 2;4:339

Orlando DA, Brady SM, Koch JD, **Dinneny JR**, Benfey PN (2009) Manipulating large-scale Arabidopsis microarray expression data: identifying dominant expression patterns and biological process enrichment. *Methods in Molecular Biology* 553:57-77

Filiault D, Wessinger C, **Dinneny JR**, Lutes J, Borevitz J, Weigel D, Chory J, and Maloof JN (2008) Amino acid polymorphisms in *Arabidopsis* Phytochrome B causes differential response to light. *Proc. Natl. Acad. Sci.* Feb 26;105(8):3157-62

Brady SM, Orlando D, Lee JY, Wang JY, Koch J, **Dinneny JR**, Mace D, Ohler U, Benfey PN (2007) A high-resolution root spatiotemporal map reveals dominant expression patterns. *Science* Nov 2;318(5851):801-6

**Dinneny JR**, Weigel D, Yanofsky MF (2006) *NUBBIN* and *JAGGED* define stamen and carpel shape in *Arabidopsis*. *Development* 133, 1645-1655**

**Cover issue

**Dinneny JR**, Weigel D, Yanofsky MF (2005) A genetic framework for fruit patterning in *Arabidopsis*. *Development* 132, 4687-4696**

**Cover issue

Wu X, **Dinneny JR**, Crawford KM, Rhee Y, Citovsky V, Zambryski PC, Weigel D (2003) Modes of intercellular transcription factor movement in the *Arabidopsis* apex. *Development* 130, 3735-3745.

Kiyosue T, Ohad N, Yadegari R, Hannon M, **Dinneny J**, Wells D, Katz A, Margossian L, Harada J, Goldberg R, Fischer RL (1999) Control of fertilization-independent-endosperm development by the *MEDEA* polycomb gene in *Arabidopsis*. *Proc. Natl. Acad. Sci.* 96, 4186-4191.

**PUBLICATIONS- Policy statements, reviews and book chapters**

Magallon KJ, **Dinneny JR** (2019) Environmental Stress: Salinity Ruins a Plant's Day In the Sun. Curr Biol. 2019 May 20;29(10):R360-R362. doi:10.1016/j.cub.2019.04.006. PubMed PMID: 31112684.

Scharwies JD, **Dinneny JR** (2019) Water transport, perception, and response in plants. *J Plant Res.* doi: 10.1007/s10265-019-01089-8. PMID: 30747327

**Dinneny JR** (2018) Getting it right on GMOs. *Science* 360 (6396), 1407

Sun Y, **Dinneny JR** (2018) Q&A: How do gene regulatory networks control environmental responses in plants? *BMC Biol.* 2018 Apr 11;16(1):38. doi: 10.1186/s12915-018-0506-7.

Cuevas-Velazquez C, **Dinneny JR** (2018) Organization out of disorder: liquid-liquid phase separation in plants. *Current Opinion in Plant Biology* May 30;45(Pt A):68-*74. doi: 10.1016/j.pbi.2018.05.005.*

Friesner J, Assmann SM, Bastow R, Bailey-Serres J, Beynon J, Brendel V, Buell CR, Bucksch A, Busch W, Demura T, **Dinneny JR**, Doherty CJ, Eveland AL, Falter-Braun P, Gehan MA, Gonzales M,

Grotewold E, Gutierrez R, Kramer U, Krouk G, Ma S, Markelz RJC, Megraw M, Meyers BC, Murray JAH, Provart NJ, Rhee S, Smith R, Spalding EP, Taylor C, Teal TK, Torii KU, Town C, Vaughn M, Vierstra R, Ware D, Wilkins O, Williams C, Brady SM (2017) The next generation of training for Arabidopsis researchers: bioinformatics and quantitative biology. Plant Physiol. 2017 Dec;175(4):1499-1509. doi: 10.1104/pp.17.01490.

Brophy JAN, LaRue T, **Dinneny JR** (2018) Understanding and engineering plant form. Seminars in Cell and Developmental Biology S1084-9521(17)30382-8. doi: 10.1016/j.semcdb.2017.08.051.

Sebastian J and **Dinneny JR** (2016) *Setaria viridis*: a Genetic Model System for Panicoideae Grass Root Systems. *Genetics and Genomics of Setaria, 19:177-193* Springer International Publishing

Feng W, Lindner H, Robbins II N, **Dinneny JR** (2016) Growing Out of Stress: The Role of Cell- and Organ-scale Growth Control in Plant Water-stress Responses. *The Plant Cell* dx.doi.org/10.1105/tpc.16.00182

Rellán-Álvarez R, Lobet G, **Dinneny JR** (2016) Environmental Control of Root System Biology. *Annual Review of Plant Biology* Vol. 67: 619-642

**Dinneny JR** (2015) A developmental biologist's journey to rediscover the Zen of plant physiology. F1000Research.

Robbins NE 2nd, **Dinneny JR** (2015) The divining root: moisture-driven responses of roots at the micro- and macro-scale. J Exp Bot. PMID: 25617469.

**Dinneny JR** (2015) Traversing organizational scales in plant salt-stress responses. *Curr. Opin. Plant Biol.* 23, 70-75.

Sebastian, J, Duan, L, **Dinneny JR** (2015) Salt-stress regulation of root system growth and architecture in Arabidopsis seedlings. *Methods Mol Biol.* 1242:105-22

Velasquez SM, **Dinneny JR**, Estevez JM. Live imaging of root hairs. *Methods Mol Biol.* 2015;1242:59-66.

Robbins, NR 2nd, Trontin C, Duan L, **Dinneny JR** (2014) Beyond the barrier: communication in the root through the endodermis. *Plant Physiol.* 166(2), 551-559.

**Dinneny JR** (2014) A gateway with a guard: how the endodermis regulates growth through hormone signaling. *Plant Sci.* 214, 14-19

**Dinneny JR** (2013) Cell-type resolution analysis of root development and environmental responses. *Roots and their soil interactions: What we can learn from genomics* Chapter 4: 63-78 Wiley Publishing

Wee CW and **Dinneny JR** (2010) Tools for high-spatial and temporal-resolution analysis of environmental responses in plants. *Biotechnol. Lett*. 32(10), 1361-1371

**Dinneny JR** (2010) Analysis of the salt-stress response at cell-type resolution. *Plant Cell & Environment* 1;33(4):543-51

**Dinneny JR**, Benfey PN (2009) Studying root development using a genomic approach. *Annual Plant Reviews, Volume 37, Root Development* Chapter 12: 325-351 Blackwell Publishing

**Dinneny JR** and Benfey PN (2008) Plant stem cell niches: standing the test of time. *Cell* Feb 22;132(4):553-7

**Dinneny JR** and Benfey PN, (2005) Stem cell research goes underground: the *RETINOBLASTOMA-RELATED* gene in root development. *Cell* 123, 1180-1182

**Dinneny JR** and Yanofsky MF (2005) Drawing lines and borders: how the dehiscent fruit of *Arabidopsis* is patterned. *Bioessays* 27, 42-49

**Dinneny JR** and Yanofsky MF (2004) Floral Development: An ABC Gene Chips in Downstream. *Curr. Biol.* 14, R840-R841

**Dinneny JR** and Yanofsky MF (2004) Vascular Patterning: Xylem or Phloem? *Curr. Biol.* 14, R112-R114

## CURRENT FUNDING

**U.S. Department of Energy**, Proposal ID 0000241323: Cryo-Electron Microscopy and Tomography for Frozen Hydrated Biological Samples, PI, Wah Chu, Co-PI, José R. Dinneny, Awarded August, 2018

**Stanford Precourt Energy Institute**, Seed Grant: Enhancing Cellulose Digestion and Bioethanol Production through a New Genetic and Molecular Engineering Strategy in Plants and Microbes. PI Lynette Cegeski, Co-PI, José Dinneny, Awarded June, 2018

**U.S. Department of Energy**, DE-SC0018277: Using systems approaches to improve photosynthesisand water use efficiency in sorghum, Awarded September, 2017

**National Institutes of Health**, Cellular Signaling and Response Systems Program, Signaling in Cell Expansion and Morphogenesis, Awarded March, 2017

**U.S. Department of Energy**, ARPA-e, 1565-1555: Thermoacoustic Root Imaging, Biomass Analysis, and Characterization, Awarded December, 2016

**Howard Hughes Medical Institute**, Simons Foundation, HHMI-Simons Faculty Scholar, Awarded September, 2016

## PAST FUNDING

**National Science Foundation**, Molecular and Cellular Biology, 1157895: Collaborative Research: Salt-stress regulation of spatiotemporal gene expression patterns in the Arabidopsis root, Awarded May, 2012

**U.S. Department of Energy**, DE-SC0008769: A Systems-level analysis of drought and density response in the model C4 grass Setaria viridis, Awarded September, 2012

**National Science Foundation**, Integrated Organismal Systems, 1238202: Natural Variation and Drought Responses in Developing Maize Inflorescences, Awarded April, 2013

## AWARDS

| | |
|---|---|
| Stanford Woods Institute Leaders in Interdisciplinary Collaboration (LiNC) Fellow | June, 2018 |
| *Science News* magazine's 2017 SN 10: Scientists to Watch list | October, 2017 |
| HHMI-Simons Faculty Scholar | September, 2016 |
| National Research Foundation Fellowship, Singapore | January, 2008 |
| Ruth L. Kirschstein National Research Service Award (NIH) | May, 2005 |
| UCSD Biology Division teaching award | July, 2002 |
| Babcock Prize, College of Natural Resources, UCB | May, 2000 |
| *Phi Beta Kappa member* | *May, 2000* |
| Howard Hughes Medical Institute Predoctoral Fellowship | April, 2000 |

**SERVICE**

*Editorial work*

| | |
|---|---|
| 2018 - 2019 | Associate Editor, Plant Physiology |
| 2013 – 2017 | Managing Editor, Plant Physiology |
| 2015 | Guest Editor, PLoS Genetics |
| 2011 – 2015 | Associate Editor, Frontiers in Plant Physiology |

*Teaching Experience*

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|---|---|
| Summer 2018, 2019 | Coordinator for 3-week course on Frontiers and Techniques in Plant Science, Cold Spring Harbor Laboratory, NY |
| Winter 2018, 2019 | BIO 84, Physiology, Stanford University |
| Winter 2017 | BIOS 252, Understanding Plant-Environmental Responses, Stanford University |
| Summer 2016 | Frontiers and Techniques in Plant Science, CSHL |
| Summer 2009/10 | BL5221, Graduate module in Plant Biology, 1-2 lectures, TLL |
| Spring 2005 | BICD 123 Plant Biology Lab, UCSD |
| Winter 2004 | BICD 100 Genetics, UCSD |
| Spring 2002 | BICD 101 Eukaryotic Genetics Lab, UCSD |

*PhD students advised (current position):*

National University of Singapore: Lina Duan (post-doc), Yu Geng (post-doc), Rui Wu (post-doc), Bao Yun (Staff Scientist)

Stanford University: Neil Robbins II (Consultant)

*Post-doctoral fellows trained (current position):*

Jose Sebastian, Assistant Professor, Indian Institute of Science Education and Research, Berhampur, India and Ramalingaswami Re-entry Fellow, Rubén Rellán-Álvarez, Assistant Professor NCSU, Cinvestav, Charlotte Trontin, MBA program at Collège des Ingénieurs, Pooja Aggarwal, Consultant, Biotech Connection Singapore, Choon Wei “Jeffrey” Wee, Agilent, Chong Han Ng, Post-doc, Lecturer, Melaka Multimedia University

*Committee Involvement*

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|---|---|
| 2018-present | Graduate Admission Committee, Stanford University |
| 2018-present | Adaptive Expertise Assessment Committee, Stanford University |
| 2015-2020 | Treasurer and Elected member, North American Arabidopsis Steering Committee (NAASC) |
| 2014-2018 | ASPB Science Policy Committee |
| 2011-2017 | Seminar Committee, Carnegie DPB |

*Grant Panel Participation*

NSF (MCB, IOS), NIH (CSRS), European Union (F7), DOE (BER)

**INVENTION DISCLOSURES**

"Luciferase Reporter System for Roots and Methods of Using the Same." Patent application US20140051101, Jose R. Dinneny, Carnegie Institution of Washington (2012).

**Conference and workshop organization**

Frontiers and Techniques in Plant Science Summer Course, CSHL, 2018, 2019

International Conference on Arabidopsis Research, Seattle, Washington, 2020

GRC: Salt and Water Stress, Waterville, NH, 2020, Vice Co-Chair

"Seeds of Change: using plants to broaden the impact of science in society", NSF-funded 3-day workshop, Nov 7-9, 2018, Lead organizer

GRC: Salt and Water Stress, Waterville, NH, 2018, Vice Co-Chair

Carnegie Institution for Science and Stanford Plant Biology Retreat, Asilomar, CA, 2017

International Conference on Arabidopsis Research, St Louis, Missouri, 2017

Carnegie Institution for Science and Stanford Plant Biology Retreat, Stanford, CA, 2014

**PROFESSIONAL SOCIETY MEMBERSHIP**

AAAS, SACNAS, ASPB, SDB, CSC

**INVITED SEMINARS (2015-2018)**

UC Merced, CA 2019

Nature Conferences: Plants of the Future, NYU, 2019

UC Berkeley Plant Engineering Symposium, Berkeley, CA, 2019

UT Austin, 2019

University of Massachusetts, Boston, 2019

UC Davis Plant Sciences Symposium, 2019

"Seeds of Change" Minisymposium, UC Davis, 2018

ARPA-e awardees workshop, South San Francisco, 2018

GRC: Plant Molecular Biology, Holderness, NH, 2018

GRC: Salt and Water Stress, Waterville, NH, 2018

California State University Northridge, 2018

University of California, Davis, 2018

Michigan State University, 2018

DOE-BER Genome Sciences meeting, VA, 2018

University of Wisconsin, Madison, 2017
Noble Research Institute, OK, 2017
Society of Developmental Biologists, MN, 2017
University of Tokyo, Japan, 2017
Japan Botanical Society, 2017
RIKEN, Yokohama, Japan, 2017
Nara Institute for Science and Technology, Japan, 2017
CSHL Frontiers in Plant Techniques, New York, 2017
University of Georgia, Athens, Department of Plant Biology, 2017
Yale University, Department of Molecular, Cell and Developmental Biology, 2016
University of Washington, Department of Biology and Genome Sciences, 2016
Gordon Research Conference, Salt and Water Stress, Les Diablerets, Switzerland, 2016
Plant Gene Expression Center, USDA, Albany, 2016
University of Lincoln, Nebraska, Biotechnology seminar series, 2016
DOE JGI Annual User's Meeting, Walnut Creek, 2016
Washington State University, Pullman, Biology Graduate Student Symposium Keynote, 2016
ASPB Annual Meeting, Presidents Symposium, Minnesota, 2015
University of California, Riverside, Center for Plant Cell Biology, 2015
Shanghai Center for Plant Stress Biology, 2015
Institute of Botany, Beijing, 2015
Plant Responses to Stress International Symposium, CAU, Beijing, 2015
Donald Danforth Plant Science Center, 2015
University of Maryland, Department of Plant Science and Landscape Architecture, 2015
Salk Institute for Biological Science, La Jolla, CA, 2015