Néstor Kippes - Curriculum vitae

Nationallity: Argentinean (born)
Italian (by marriage, in process)
US Permanent Resident

Employment

Postdoctoral Researcher November 2016 – *current*
Genome Center UC Davis
California, US
Prof. Comai laboratory

Postdoctoral Researcher December 2015 – October 2016
Plant Sciences Department UC Davis
California, US
Prof. Dubcovsky laboratory

Visiting Ph.D. Student December 2010 – November 2015
Plant Sciences Department UC Davis
California, US
Prof. Dubcovsky laboratory

Education

- Ph.D. in Agronomic Sciences, School of Agriculture, University of Buenos Aires, Argentina [2015] Thesis topic: "Identification of a major gene controlling vernalization requirement in common wheat (*Triticum aestivum* L.)".
  Advisor: Prof. Jorge Dubcovsky

- BS/MS. Biotechnology, National University of San Martín, Buenos Aires, Argentina [2010]

Experience

10 years of experience with seed and clonally propagated crops plant breeding research.

Experience with training, management, budgeting, and team building.

Extensive experience working in multi-cultural environments.

Experience with multi-year grant conception, acquisition and management.

Technical Skills

Crop Genetics: Led gene discovery projects, characterized natural genetic variation, and produced mutant populations. I have experience developing hybrids and producing polyploids through whole-genome duplication. I have optimized testing methods for the rapid detection of resistance to root pathogens.

Clonal Crops: Managed plant breeding strategies for clonally propagated species, produced hybrids, mapping populations and tools for functional genomics. I have developed protocols for tissue culture, protoplast isolation and genome-editing approaches.

Molecular Biology: Highly skilled in techniques including DNA and RNA extraction and assessment, PCR, cloning and qPCR. Experience with High Throughput Sequencing, RNAseq and Isoseq PacBio libraries preparation and analysis. Experience designing and deploying molecular markers at low and high throughputs in diploid and polyploid crops, developing mapping strategies and candidate gene validation.

Functional Genomics: Developed different mutant populations for gene validation. Experience producing, handling and screening y-ray mutant populations and EMS-induced TILLING populations in polyploid plants.

Genome editing: Experience optimizing plant protoplast isolation protocols and developing CRISPR/Cas9 genome editing strategies. Experience with tissue culture working in biosafety cabinets and in-vitro culture.

Technical: Familiarity with R and SAS for statistical analysis and Python pipelines. Experience using UNIX, LATEX, and HTML.

Field: Experience growing plants in field, greenhouse, and under controlled conditions. Conducted multi-location field trials, progeny tests, experiments under controlled environments and screened natural genetic diversity for traits such as quality, yield, and disease resistance.

Publications

9. Diploid mint (*M. longifolia*) can produce spearmint type oil with a high yield potential
   Kippes N, Tsai H, Lieberman M, Culp D, Dowd E, Comai L and Henry IM
   Nature HortRes (2021) *In press*

8. Efficient construction of a linkage map and haplotypes for *Mentha suaveolens* using sequence capture
   Tsai H, **Kippes N**, Firl A, Lieberman M, Comai L and Henry IM
   G3 (2021) *In press (Accepted)*

7. Effect of *phyB* and *phyC* loss-of-function mutations on the wheat transcriptome under short and long day photoperiods.
   Kippes N, VanGessel C, Hamilton J, Akpinar A, Dubcovsky J, Pearce S
   BMC Plant Biol 2020 doi: 10.1186/s12870-016-0831-3

6. Single Nucleotide Polymorphisms in a regulatory site of *VRN-A1* first intron are associated with differences in vernalization requirement lenght of winter wheat.
   Kippes N, Guedira M, Lin L, Alvarez ML, Brown-Guedira GL, Dubcovsky J.
   Mol Genet Genomics Jun 2018 293(5):1231–1243.

5. RNA-seq studies using wheat *PHYB* and *PHYC* mutants reveal shared and specific functions in the regulation of flowering and shade-avoidance pathways.
   Pearce S, **Kippes N**, Chen A, Debernardi JM, Dubcovsky J.
   BMC Plant Biol 2016 Jun 21; 16(1):141.

4. Development and characterization of a spring hexaploid wheat line with no functional *VRN2* genes.
   Kippes N, Chen A, Zhang X, Lukaszewski AJ, Dubcovsky J.

Theor Appl Genet 2016 Jul 129(7):1417-28.

3. Genetic and physical mapping of the earliness per se locus *Eps-Am1* in *Triticum monococcum* identifies *EARLY FLOWERING 3* (*ELF3*) as a candidate gene.
   Alvarez MA, Tranquilli G, Lewis S, **Kippes N**, Dubcovsky J.
   Funct Integr Genomics Jul 2016 16(4):365-82

2. Identification of the *VERNALIZATION 4* gene reveals the origin of spring growth habit in ancient wheats from South Asia.
   Kippes N, Debernardi JM, Vasquez-Gross HA, Akpinar BA, Budak H, Kato K, Chao S, Akhunov E, Dubcovsky J.
   Proc Natl Acad Sci USA 2015 doi: 10.1073/pnas.1514883112
   Featured in commentary page https://www.pnas.org/content/112/39/11991

1. Fine mapping and epistatic interactions of the vernalization gene *VRN-D4* in hexaploid wheat.
   Kippes N, Zhu J, Chen A, Vanzetti L, Lukaszewski A, Nishida H, Kato K, Dvorak J, Dubcovsky J.
   Mol Genet Genomics Feb 2014 289(1):47-62.

Participation in scientific meetings

Using a Combination of Sequencing Methods for Improved De Novo Genome Assembly.
Firl A, **Kippes N**, Dowd E, Comai L and Henry IM. Plant and Animal Genome XXVI Conference, January 13-17, 2018 *San Diego, CA, USA*.

Modulation of the vernalization requirement of hexaploid wheat by non-functional *VRN2* alleles.
Kippes N, Chen A, Zhang X, Lukaszewski A and Dubcovsky J. Plant and Animal Genome XXIV Conference, January 9-13, 2016, *San Diego, CA, USA*. P0846.

Genetic and physical mapping of the earliness per se locus *EpsAm1* in *Triticum monococcum* identifies *EARLY FLOWERING 3* (*ELF3*) as a candidate gene.
Alvarez MA, Tranquilli G, Lewis S, **Kippes N** and Dubcovsky J. Plant and Animal Genome XXIV Conference, January 9-13 2016, *San Diego, CA, USA*. P0843 and W787.

Positional cloning of the wheat vernalization gene *VRN-D4* reveals the origin of spring growth habit in ancient hexaploid wheats from India.
Kippes N, Akpinar A, Vasquez-Gross H, Chao S, Akhunov E, Budak H, Kato K and Dubcovsky J. Plant and Animal Genome XXIII Conference. Jan 10-14 2015, *San Diego, CA, USA*. W879. **Invited Speaker**

Identification of the *VERNALIZATION 4* gene sheds light on the vernalization mechanism.
Kippes N, Debernardi JM and Dubcovsky J. Howard Hughes Medical Institute Meeting, 2015, *MD, USA*.

Light regulatory networks connecting phytochromes and photoperiod in wheat development.
Dubcovsky J, Chen A, Li C and **Kippes N**. USDA's Plant Biology Programs Project Director

Meeting. May 22-23, 2012, *Washington DC, USA*.

Fine mapping and epistatic interactions of *VRN-D4* in common wheat.
Kippes N, Zhu J, Chen A, Nishida H, Vanzetti L, Kato K, Helguera M and Dubcovsky J. Plant and Animal Genome XX Conference. January 14-18, 2012. *San Diego, CA, USA*. PO306.

Mentoring

Sophie Allen (Evolution, Ecology, and Biodiversity Major)	Jul 2021 - current
James Schmidt (Genetics and Genomics Major)	Nov 2019 - Jun 2021
Marissa Jasper (Environmental Science and Management Major)	Oct 2018 - Sep 2019
Nampun Hungsaprug (Visiting Master student, Comai Lab)	Jun 2017 - Dec 2018
Kimberly Cabrera (Wildlife, Fish and Conservation Biology Major)	Jun 2017 - Sept 2018
Lijuan Lin (M.Sc. graduate, Dubcovsky Lab)	May 2015 - Nov 2017
Lucero Morales (Biotechnology Major)	Jan to Jun 2017
Marielle Palatino (Biochemistry and Molecular Biology Major)	Sep 2014 to Jun 2015
Karla Angelica Gonzalez Ocampo (Freshman year)	Mar 2013 to May 2014
Maisie Borg (Environmental Science and Management Major)	Jun 2012 to Jan 2013
Anna Dominique-Rodriguez (Biology Major)	Jul 2011 to Jul 2012

Mentor in the UC Davis Young Scholars Program (Summer 2012)

Teaching

Invited lecturer: Class on "Plant Natural Products Biotechnology" as part of UC Davis Graduate Course (PBI298). Spring 2019

Funding

"Identification of the genetic factors underlying mint oil production and flavor components" Funding Opportunity Number: USDA-NIFA-AFRI-007052 Role: co-PI — $650K — Under Review

Seminar

UC Davis Office of the Ombuds / Professors for the Future Program / Grad Pathways: Having the Hard Conversations: Communication Skills Seminar for Current and Future Managers 2019

Languages

English (Full professional proficiency) and Spanish (Native)

Outreach

- **Poster**: "New Mint varieties can be developed by leveraging natural and induced genetic variation" UCD Plant Breeding Annual Retreat, Bodega Bay Marine Lab, California 2019
- **Speaker**: "Developing a platform for mint breeding and improvement" UCD Plant Breeding Annual Retreat, Monterey Conference Center, California 2018
- **Host and Speaker** during a visit 30 entrepreneurs to the Dubcovsky Lab at UC Davis. Jun

9th 2016 (www.globaltecnos.com.ar).
- **Poster**: "Identification of the *VERNALIZATION 4* gene reveals the origin of spring growth habit in ancient wheats from South Asia". Seed Biotechnology Center, Seed Central Event, UC Davis. November 2015.
- **Host of 20 Agribusiness visitors** to the Dubcovsky Lab at UC Davis. Sep 12th 2013 (www.globaltecnos.com.ar).
- **Guest Speaker:** "Progress toward positional cloning of *VRN-D4* in common wheat (*Triticum aestivum* L.)". National Agricultural Technology Institute (INTA), December 3th 2012, Buenos Aires, Argentina. National Agricultural Technology Institute (INTA), December 3th 2012, Buenos Aires, Argentina.

Peer review

I have reviewed several research articles in my field of expertise for different Journals:
Agronomy - Crop Science - Current Biology - Euphytica - Planta - Theoretical and Applied Genetics - Genomics - Plant Biotechnology Journal - Plant Breeding - Plant Cell and Environment - The Plant Journal - PLoS One - PeerJ
Full reviewer profile: https://publons.com/researcher/720901/nestor-kippes/