



Daniel Fernandez

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CONTACT INFORMATION

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Bio

BIO

Some say that proteins are spaghetti-like and wiggly. I use X-rays, crystals, and crystallography to "see" the atoms that make up things like spaghetti.

ACADEMIC APPOINTMENTS

- Senior Research Scientist, Sarafan ChEM-H

PROFESSIONAL EDUCATION

- PhD, Universitat Autònoma de Barcelona , Biotechnology (2009)
- Licenciado, Universidad Nacional de San Martín , Biotechnology (2003)

LINKS

- Macromolecular Structure at Nucleus: <https://macromolecular-structure.stanford.edu/>

Publications

PUBLICATIONS

- **A bivalent molecular glue linking lysine acetyltransferases to oncogene-induced cell death**
Nix, M., Gourisankar, S., Nettles, S., Bowman, K., Yang, H., Dwyer, B. G., Sarott, R. C., Abuzaid, H., Martinez, M., Krokhotin, A., Chen, L., Davis, M. M., Fernandez, et al
AMER ASSOC CANCER RESEARCH.2026
- **A small molecule PTER-selective inhibitor reduces food intake and body weight.** *Cell chemical biology*
Fu, S., Wang, L., Li, V. L., Lyu, X., Wei, W., Shi, X., Deng, S., Barber, J. L., Tahir, U. A., Adams, C., Carson, A., Hidalgo, B., Raffield, et al
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- **Ion-selective structural transitions of a disordered repeats-in-toxin protein domain**
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- **Repetitive proteins that undergo large conformational changes evade structural prediction algorithms.** *The Journal of chemical physics*
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- **Insights into nucleoside transport in lyme disease: structure and function of *Borrelia burgdorferi* Bmp proteins**
Liu, Q., Fernandez, D., Alexandrova, L., Sharaf, N. G.

WILEY.2025

- **Ion-selective conformational stabilization of a disordered repeats-in-toxin protein domain.** *Biophysical journal*
Gudinas, A. P., Shambharkar, G. M., Chang, M. P., Fernández, D., Matsui, T., Mai, D. J.
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- **Defining the antitumor mechanism of action of a clinical-stage compound as a selective degrader of the nuclear pore complex.** *Cancer discovery*
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2025
- **ENPP1 inhibitor with ultralong drug-target residence time as an innate immune checkpoint blockade cancer therapy.** *Cell reports. Medicine*
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2025: 102336
- **ANGPTL3 orchestrates hepatic fructose sensing and metabolism.** *Cell reports*
Zhao, M., Linde-Garelli, K. Y., Zhang, Z., Toomer, D., Reghupaty, S. C., Jimenez, J. I., Coassolo, L., Wat, L. W., Fernandez, D., Svensson, K. J.
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- **Utilizing Machine Learning to Improve Neutralization Potency of an HIV-1 Antibody Targeting the gp41 N-Heptad Repeat.** *ACS chemical biology*
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2025
- **Crystal structure and ligand-binding specificity of the *Borrelia burgdorferi* proteins BmpA and BmpB**
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- **A Bivalent Molecular Glue Linking Lysine Acetyltransferases to Oncogene-induced Cell Death.** *bioRxiv : the preprint server for biology*
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- **Expression, Purification, and Characterization of *Escherichia Coli* Diacylated Lipoprotein YcJn**
Sharaf, N., Trevino, M. A., Amankwah, K., Fernandez, D., Weston, S., Stewart, C. J., Gallardo, J. M.
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- **Basic Science and Pathogenesis.** *Alzheimer's & dementia : the journal of the Alzheimer's Association*
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- **Expression, purification, and characterization of diacylated Lipo-YcJN from *Escherichia coli*.** *The Journal of biological chemistry*
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- **Dual quorum-sensing control of purine biosynthesis drives pathogenic fitness of *Enterococcus faecalis*.** *bioRxiv : the preprint server for biology*
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- **Structural insights reveal interplay between LAG-3 homodimerization, ligand binding, and function.** *Proceedings of the National Academy of Sciences of the United States of America*
Silberstein, J. L., Du, J., Chan, K. W., Frank, J. A., Mathews, I. I., Kim, Y. B., You, J., Lu, Q., Liu, J., Phillips, E. A., Liu, P., Rao, E., Fernandez, et al
2024; 121 (12): e2310866121
- **An orally bioavailable SARS-CoV-2 main protease inhibitor exhibits improved affinity and reduced sensitivity to mutations.** *Science translational medicine*
Westberg, M., Su, Y., Zou, X., Huang, P., Rustagi, A., Garhyan, J., Patel, P. B., Fernandez, D., Wu, Y., Hao, C., Lo, C. W., Karim, M., Ning, et al
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- **Targeting *Aspergillus* allergen oryzin with a chemical probe at atomic precision** *SCIENTIFIC REPORTS*
Pattelli, O. N., Diec, D., Guo, W., Russi, S., Fernandez, D.
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- **Structure-guided stabilization improves the ability of the HIV-1 gp41 hydrophobic pocket to elicit neutralizing antibodies.** *The Journal of biological chemistry*
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- **De Novo Design of a Highly Stable Ovoid TIM Barrel: Unlocking Pocket Shape towards Functional Design.** *Biodesign research*
Chu, A. E., Fernandez, D., Liu, J., Eguchi, R. R., Huang, P. S.
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- **ENPP1's regulation of extracellular cGAMP is a ubiquitous mechanism of attenuating STING signaling.** *Proceedings of the National Academy of Sciences of the United States of America*
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- **Structure-Aided Development of Small-Molecule Inhibitors of ENPP1, the Extracellular Phosphodiesterase of the Immunotransmitter cGAMP.** *Cell chemical biology*

- Carozza, J. A., Brown, J. A., Bohnert, V., Fernandez, D., AlSaif, Y., Mardjuki, R. E., Smith, M., Li, L.
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- **A Plasma Protein Network Regulates PM20D1 and N-Acyl Amino Acid Bioactivity.** *Cell chemical biology*
Kim, J. T., Jedrychowski, M. P., Wei, W., Fernandez, D., Fischer, C. R., Banik, S. M., Spiegelman, B. M., Long, J. Z.
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 - **Bump-and-Hole Engineering Identifies Specific Substrates of Glycosyltransferases in Living Cells.** *Molecular cell*
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2020
 - **Protein structural changes on a CubeSat under rocket acceleration profile.** *NPJ microgravity*
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 - **STING Polymer Structure Reveals Mechanisms for Activation, Hyperactivation, and Inhibition.** *Cell*
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 - **Discovery of Mechanism-Based Inactivators for Human Pancreatic Carboxypeptidase A from a Focused Synthetic Library** *ACS MEDICINAL CHEMISTRY LETTERS*
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 - **Calcium-dependent oligomerization of CAR proteins at cell membrane modulates ABA signaling** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
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 - **C2-Domain Abscisic Acid-Related Proteins Mediate the Interaction of PYR/PYL/RCAR Abscisic Acid Receptors with the Plasma Membrane and Regulate Abscisic Acid Sensitivity in *Arabidopsis*** (Publication with Expression of Concern. See vol. 37, 2025) *PLANT CELL*
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 - **Progress in metalloproteases and their small molecular weight inhibitors** *BIOCHIMIE*
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- **The X-Ray Structure of Carboxypeptidase A Inhibited by a Thiirane Mechanism-Based Inhibitor** *CHEMICAL BIOLOGY & DRUG DESIGN*
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- **Head-to-head dimers in the zwitterion of 1-hydroxy-3-(pyrrolidin-1-yl)propylidene-1,1-bisphosphonic acid (EB 1053)** *ACTA CRYSTALLOGRAPHICA SECTION C-CRYSTAL STRUCTURE COMMUNICATIONS*
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- **1-[2-(1-Hydroxycyclohexyl)-2-(4-methoxyphenyl)ethyl]dimethylammonium chloride (venlafaxine hydrochloride)** *ACTA CRYSTALLOGRAPHICA SECTION C-STRUCTURAL CHEMISTRY*
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