

# Stanford

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## Robert Kazimierz Lesniak

Instructor, Pathology

### Bio

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#### BIO

Robert K. Le#niak joined the Medicinal Chemistry Knowledge Center at Stanford ChEM-H in 2018 as a postdoctoral fellow. Prior to coming to Stanford, he worked with Professor Chris Schofield at the University of Oxford, as a postdoctoral research associate, designing novel antibiotics for the European gram-negative antibacterial engine (ENABLE) and UK Medical Research Council (MRC). Dr Le#niak also completed his DPhil under the guidance of Professor Schofield as a BHF-CRE studentship recipient, which involved the design and implementation of small molecules targeting Fe(II), 2-oxoglutarate dependent oxygenase enzymes involved in carnitine biosynthesis and hypoxic response as a means to treat cardiovascular disease. In addition, work on small-molecule modulation of bacterial metallo-beta-lactamases to combat antibiotic resistance was also carried out. Dr Le#niak completed his undergraduate at the University of Bristol, and worked at GlaxoSmithKline, North Carolina, developing inhibitors of bromodomains and histone acetyl-transferases. He is currently an instructor and medicinal chemist working with Professor Thomas Montine at the Stanford School of Medicine on the design of neurotransmitter prodrugs.

#### ACADEMIC APPOINTMENTS

- Instructor, Pathology

#### PROFESSIONAL EDUCATION

- MSci, University of Bristol , MSci in Chemistry (2012)
- DPhil, Oxford University , Chemical Biology (2017)

### Publications

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#### PUBLICATIONS

- **Enantiomers of 2-methylglutamate and 2-methylglutamine selectively impact mouse brain metabolism and behavior.** *Scientific reports*  
Wawro, A. M., Gajera, C. R., Baker, S. A., Lesniak, R. K., Fischer, C. R., Saw, N. L., Shamloo, M., Montine, T. J.  
2021; 11 (1): 8138
- **Imitation of #-lactam binding enables broad-spectrum metallo-#-lactamase inhibitors** *Nature Chemistry*  
Brem, J., Panduwawala, T., Ulf Hansen, J., Hewitt, J., Liepins, E., Donets, P., Espina, L., J. M. Farley, A., Shubin, K., Gomez Campillos, G., Kiuru, P., Shishodia, S., Krahn, et al  
2021
- **Enantiomers of 4-aminopentanoic acid act as false GABAergic neurotransmitters and impact mouse behavior.** *Journal of neurochemistry*  
Wawro, A. M., Gajera, C. R., Baker, S. A., Le#niak, R. K., Montine, K. S., Fischer, C. R., Saw, N. L., Shamloo, M., Montine, T. J.  
2021
- **High-Throughput Crystallography Reveals Boron-Containing Inhibitors of a Penicillin-Binding Protein with Di- and Tricovalent Binding Modes** *JOURNAL OF MEDICINAL CHEMISTRY*

Newman, H., Krajnc, A., Bellini, D., Eyermann, C. J., Boyle, G. A., Paterson, N. G., McAuley, K. E., Lesniak, R. K., Gangar, M., von Delft, F., Brem, J., Chibale, K., Schofield, et al  
2021

- **F-19 NMR studies on gamma-butyrobetaine hydroxylase provide mechanistic insights and suggest a dual inhibition mode** *CHEMICAL COMMUNICATIONS*  
Lesniak, R. K., Rydzik, A. M., Kamps, J. G., Kahn, A., Claridge, T. W., Schofield, C. J.  
2019; 55 (98): 14717–20
- **Small-molecules that covalently react with a human prolyl hydroxylase - towards activity modulation and substrate capture** *CHEMICAL COMMUNICATIONS*  
Bush, J. T., Lesniak, R. K., Yeh, T., Belle, R., Kramer, H., Tumber, A., Chowdhury, R., Flashman, E., Mecinovic, J., Schofield, C. J.  
2019; 55 (8): 1020–23
- **The Jumonji-C oxygenase JMJD7 catalyzes (3S)-lysyl hydroxylation of TRAFAC GTPases (vol 14, pg 688, 2018)** *NATURE CHEMICAL BIOLOGY*  
Markolovic, S., Zhuang, Q., Wilkins, S. E., Eaton, C. D., Abboud, M. I., Katz, M. J., McNeil, H. E., Lesniak, R. K., Hall, C., Struwe, W. B., Konietzny, R., Davis, S., Yang, et al  
2018; 14 (10): 988
- **The Jumonji-C oxygenase JMJD7 catalyzes (3S)-lysyl hydroxylation of TRAFAC GTPases** *NATURE CHEMICAL BIOLOGY*  
Markolovic, S., Zhuang, Q., Wilkins, S. E., Eaton, C. D., Abboud, M. I., Katz, M. J., McNeil, H. E., Lesniak, R. K., Hall, C., Struwe, W. B., Konietzny, R., Davis, S., Yang, et al  
2018; 14 (7): 688+
- **Crystallographic analyses of isoquinoline complexes reveal a new mode of metallo-beta-lactamase inhibition** *CHEMICAL COMMUNICATIONS*  
Li, G., Brem, J., Lesniak, R., Abboud, M. I., Lohans, C. T., Clifton, I. J., Yang, S., Jimenez-Castellanos, J., Avison, M. B., Spencer, J., McDonough, M. A., Schofield, C. J.  
2017; 53 (43): 5806–9
- **Human carnitine biosynthesis proceeds via (2S, 3S)-3-hydroxy-N-epsilon-trimethyllysine** *CHEMICAL COMMUNICATIONS*  
Lesniak, R. K., Markolovic, S., Tars, K., Schofield, C. J.  
2017; 53 (2): 440–42
- **Discovery and Characterization of GSK2801, a Selective Chemical Probe for the Bromodomains BAZ2A and BAZ2B** *JOURNAL OF MEDICINAL CHEMISTRY*  
Chen, P., Chaikuad, A., Bamborough, P., Bantscheff, M., Bountra, C., Chung, C., Fedorov, O., Grandi, P., Jung, D., Lesniak, R., Lindon, M., Mueller, S., Philpott, et al  
2016; 59 (4): 1410–24
- **Cation-pi Interactions Contribute to Substrate Recognition in gamma-Butyrobetaine Hydroxylase Catalysis** *CHEMISTRY-A EUROPEAN JOURNAL*  
Kamps, J. G., Khan, A., Choi, H., Lesniak, R. K., Brem, J., Rydzik, A. M., McDonough, M. A., Schofield, C. J., Claridge, T. W., Mecinovic, J.  
2016; 22 (4): 1270–76
- **Development and application of ligand-based NMR screening assays for gamma-butyrobetaine hydroxylase** *MEDCHEMCOMM*  
Khan, A., Lesniak, R. K., Brem, J., Rydzik, A. M., Choi, H., Leung, I. H., McDonough, M. A., Schofield, C. J., Claridge, T. W.  
2016; 7 (5): 873–80