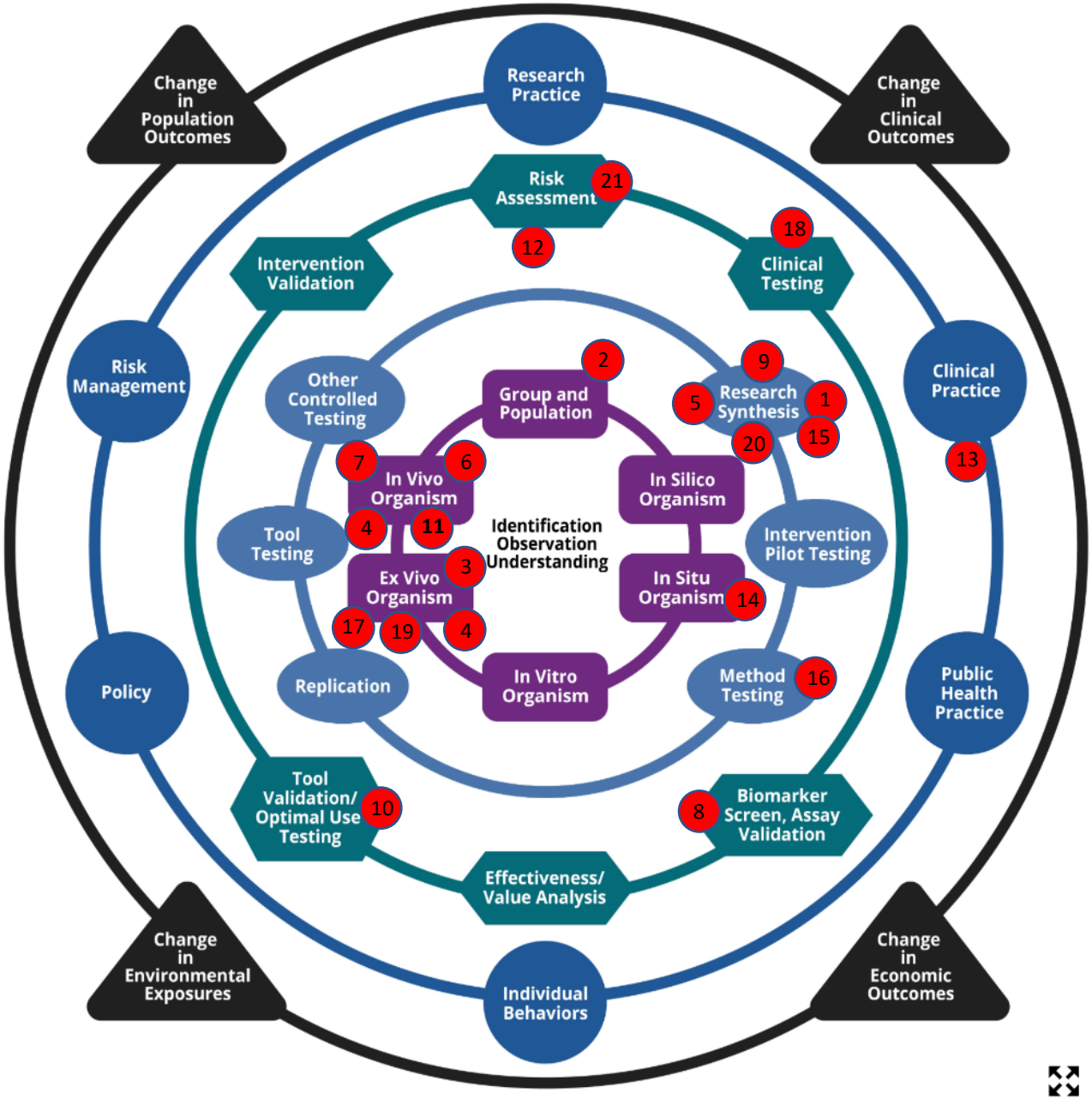
Translational Research Categories/Rings



Project 3*

1. PON1 modulates quorum sensing of *P. Aeruginosa.* Predicts role in disease sensitivity. (Ozer et al. 2005)
2. Some Latina mothers and newborns in Salinas Valley, California are more susceptible to organo-phosphate exposure based on their PON1 status. (Furlong et al. 2006)
3. PON1 status and vascular disease; discovery of previously undetected common, functional PON1 polymorphisms. (Carlson et al. 2006)
4. PON1 modulates toxicity of mixed OP compounds. (Jansen et al. 2009)
5. Multiple book chapters, review articles, and a memorial lecture.
6. Use of PON1 null mice to examine the role of organophosphate detoxification in absence of PON1. (Furlong CE. 2007)
7. Treating PON1 null mice with exogenous PON1 restores protection from diazinon exposure. (Stevens et al. 2007)

8. Determining PON1 status with human plasma. (Richter et al. 2008)
9. Bert La Du Memorial Lecture 2008.
10. PON1 plasma levels and phenotype were used to translate PON1 status data to physiologically relevant rates of detoxification. (Richter et al. 2009)
11. Transgenic mice expressing Q192R alloforms of human PON1 showed that PON1 status has a major influence on the detoxification of organophosphate compounds. (Jansen et al. 2009)
12. Higher rates of serum cholinesterase inhibition found among agricultural pesticide handlers after exposure to organophosphates. (Hofmann et al. 2009)
13. PON1 levels and activity in coronary heart disease. (Besler et al. 2011)
14. A characterization of PON2 expression in mouse tissue. (Giordano et al. 2011)
15. A review of external factors that modulate PON1 activity. (Costa et al. 2011)
16. High-throughput protocols for monitoring OP exposures using mass spectrometry. (Marsillach et al. 2013)
17. Male mice are more sensitive to oxidative stress except in PON2 knockouts. Lower expression of PON2 in males may relate to diseases involving oxidative stress including neurodegenerative and cardiovascular diseases. (Giordano et al. 2013)
18. Patients with autoimmune diseases and subclinical atherosclerosis show depleted HDL. PON3 expression in HDL was positively correlated with HDL antioxidant function. (Marsillach et al. 2015)
19. Developmental expression of PON2 in mice and non-human primates. (Garrick et al. 2016)
20. A number of heavy metals affect negatively PON1 activity. (Costa et al. 2017)
21. Studies on convergent evolution in sea mammals (that returned to the sea from land) showed loss of PON1 protein via mutations in sea mammals predicting sensitivity to diazinon and chlorpyrifos. (Meyer et al. 2018)

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- Costa, C.E. Furlong. 2002. Paraoxonase (PON1) in Health and Disease: Basic and Clinical Aspects. L.G. Costa and C.E. Furlong, eds. Kluwer Academic Press. Boston.
- Furlong CE. 2008. The Bert La Du Memorial Lecture: Paraoxonases: an historical perspective. In: The Paraoxonases: Their Role in Disease, Development and Xenobiotic Metabolism, B Mackness, M Mackness, M Aviram and G Paragh, eds. Springer, Dordrecht, The Netherlands, pp. 3-31.
- Costa LG, Cole TB, Jansen, KL, Furlong CE. 2008. Paraoxonase (PON1) and organophosphate toxicity. In: The Paraoxonases: Their Role in Disease, Development and Xenobiotic Metabolism, B Mackness, M Mackness, M Aviram and G Paragh, eds. Springer, Dordrecht, The Netherlands, pp. 209-220.
- Furlong CE, Richter RJ, Li W-F, Brophy VH, Carlson C, Meider M, Nickerson D, Costa LG, Ranchalis J, Lusis AJ, Shih DM, Tward A, Jarvik GP. 2008. The functional consequences of polymorphisms in the human PON1 gene. In: The Paraoxonases: Their Role in Disease, Development and Xenobiotic Metabolism, B Mackness, M Mackness, M Aviram and G Paragh eds. Springer, Dordrecht, The Netherlands, pp. 267-281.
- Furlong CE, Richter RJ, Costa LG, Jarvik GP. Paraoxonase 1 (PON1) Status in Risk Assessment for Organophosphate Exposure and Pharmacokinetics. ACS Book: Parameters for Pesticide QSAR and PBPK/PD Models for Human Risk Assessment. Editor(s): James B. Knaak, Charles Timchalk, and Rogelio Tornero-Velez. Volume 1099. Publication Date (Web): July 25, 2012.
- Marsillach J, Costa LG, Furlong CE. Paraoxonase-1 and Early-Life Environmental Exposures. Ann Glob Health. 2016;82(1):100-110.