Dans le cadre de ses séminaires de laboratoire, le LCPM a le plaisir d'accueillir :

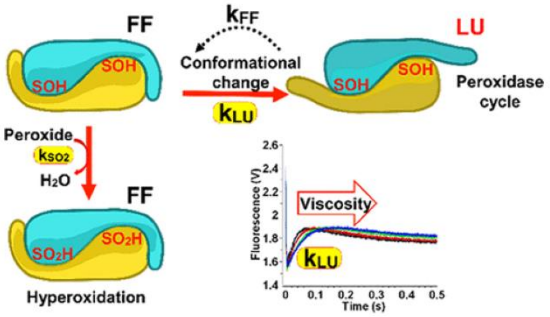
Sophie RAHUEL-CLERMONT
Directrice de recherche CNRS

Unité de recherche IMoPA
Ingénierie Moléculaire et Physiopathologie Articulaire
Equipe Enzymologie Moléculaire et Structurale
UMR 7365 CNRS-Université de Lorraine
Biopôle, campus Brabois Santé
9, avenue de la Forêt de Haye
54500 Vandœuvre-lès-Nancy

Titre de la conférence :

DYNAMICS OF A DETERMINANT CONFORMATIONAL TRANSITION IN PEROXIREDOXIN SULFINYLATION MECHANISM

Résumé : Peroxiredoxins from the Prx1 subfamily (Prx) are moonlighting peroxidases that operate in peroxide signaling and are regulated by Cys thiol hyperoxidation to the sulfinic acid state. Prxs offer a major model of protein-thiol oxidative modification. They react with H_2O_2 to form a sulfenic acid intermediate that either engages into a disulfide bond, committing the enzyme into its peroxidase cycle, or again react with another peroxide to produce a sulfinic acid that inactivate the enzyme. For Prx1-type peroxiredoxins, hyperoxidation sensitivity critically depends on the dynamics of a conformational transition from a fully folded FF to locally unfolded LU conformations. We address the hyperoxidation mechanism of Tsa1, the major *S. cerevisiae* Prx1-type enzyme, by pre-steady state and steady state kinetics and *in vivo* analysis. Exploiting Trp fluorescence and CD-based stopped flow approach, we have identified a kinetically resolved phase that we attribute to a conformation change linked to the FF/LU transition. Using mutants of moderately altered hyperoxidation sensitivities and different peroxide substrates, we observed that hyperoxidation sensitivity is uncoupled from the resolving step kinetics and only depends on the sulfinylation and FF to LU transition rate constants. From both parameters we thus now can predict the hyperoxidation sensitivity index Chyp1%, a prediction supported *in vitro* and *in vivo*.



Jeudi 16 décembre 2021, 14h00
ENSIC, salle Letort (Bâtiment E, escalier en face de l'accueil)
1 rue Grandville, 54000 Nancy

Contact : lcpm-seminaires@univ-lorraine.fr