



UNIVERSITÀ  
DEGLI STUDI  
DI BRESCIA

DIPARTIMENTO DI MEDICINA MOLECOLARE E TRASLAZIONALE

## **SEMINARIO**

**Water Proton NMR: Noninvasive Analytic  
for Biopharmaceutical Manufacturing and  
Quality Control**

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**Tutti gli Interessati sono invitati a partecipare**

## **Abstract**

Water is by far the dominant component of most pharmaceutical solutions. As the solvent, water has extensive interactions with the drug substance. It is possible to use water proton NMR ( $w$ NMR) for nondestructive analysis of pharmaceutical solutions with desktop NMR spectrometers. Examples of using  $w$ NMR to monitor protein concentration, protein aggregation, amide hydrolysis, surfactant micellization, dendrimer folding, nanoparticle formulation will be presented. Data will also be presented on FDA-approved products, including differentiating brand and generic complex drugs, and detecting dose error in prefilled injection pen of insulin. On-going work focuses developing flow- $w$ NMR as an in-line process analytic technology for continuous biomanufacturing.