

## **Use of isothermal microcalorimetry for personalized medicine applications**

Olivier Braissant

*Department of Biomedical Engineering, University of Basel, Switzerland*

Isothermal microcalorimetry has been used for many diagnostic purposes including detection of infection and drug susceptibility testing. With respect to many diseases, treatments are given according to guidelines from medical associations and calorimetry is used to speed up the process and rapidly choose the best option when antimicrobial resistance is suspected.

However, when dealing with rare diseases such as some cancers or specific treatments (such as bacteriophage), it is desirable to assess the effectiveness of the chosen treatment option. This assessment is often work-intensive and a long process. In this context, isothermal microcalorimetry allows assessing the efficacy of experimental therapies for rare solid tumors in refractory patients and provides opportunities to refine and personalize treatment.

Similarly, with respect to the use of phage therapy within personalized medicines, isothermal microcalorimetry can become a valuable tool. Indeed, while the high specificity of phage therapy has its advantages, patient treatment can only proceed when the phage susceptibility of the infecting bacteria has been assessed by a phageogram. Using calorimetry, the efficacy of the phage can be rapidly assessed.