

[CompBioMed: A Centre of Excellence in Computational Biomedicine](#)

Description

CompBioMed2 is a proposal for the second phase of the Computational Biomedicine Centre of Excellence (CoE), CompBioMed, an outward facing CoE comprising members from academia, industry and the healthcare sector. CompBioMed has established itself as a hub for practitioners in the field, successfully nucleating a substantial body of research, education, training, innovation and outreach within the nascent field of Computational Biomedicine.

Computational Biomedicine is an emergent technology that will enable clinicians to develop and refine personalised medicine strategies ahead of their clinical delivery to the patient. Medical regulatory authorities are currently embracing the prospect of using insilico methods in the area of clinical trials and we intend to be in the vanguard of this activity, laying the groundwork for the application of HPC-based Computational Biomedicine approaches to a greater number of therapeutic areas. The HPC requirements of our users are as diverse as the communities we represent. We support both monolithic codes, potentially scaling to the exascale, and complex workflows requiring support for advanced execution patterns. Understanding the complex outputs of such simulations requires both rigorous uncertainty quantification and the embrace of the convergence of HPC and high performance data analytics (HPDA). CompBioMed2 seeks to combine these approaches with the large, heterogeneous datasets from medical records and from the experimental laboratory to underpin clinical decision support systems. CompBioMed2 will continue to support, nurture and grow our community of practitioners, delivering incubator activities to prepare our most mature applications for wider usage, providing avenues that will sustain CompBioMed2 well beyond the proposed funding period.

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

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