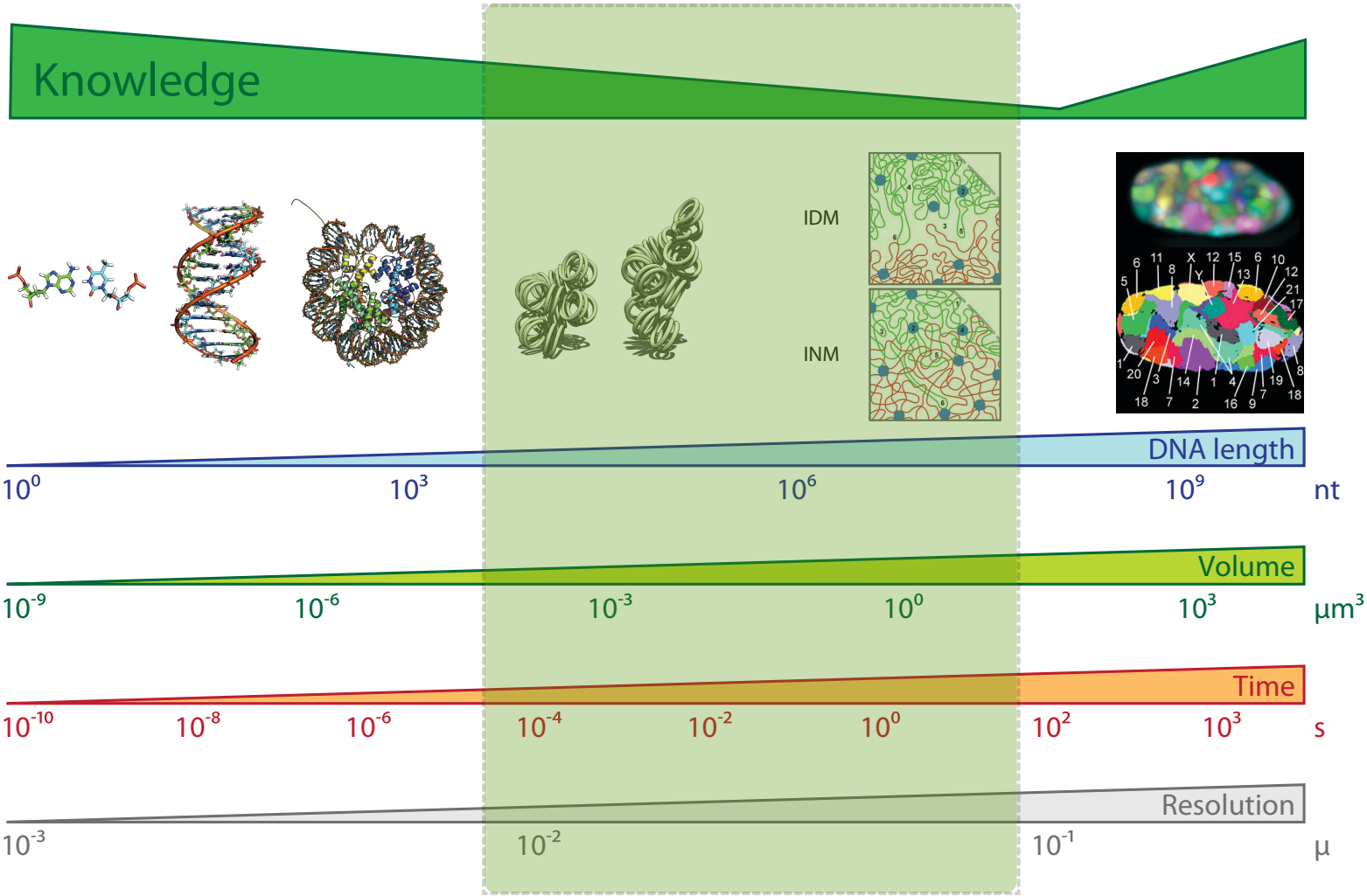
Resolution Gap

Marti-Renom, M. A. & Mirny, L. A. PLoS Comput Biol 7, e1002125 (2011)



Multiscale Complex Genomics

MuG : Multiscale complex Genomics

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 676556.

IRB BARCELONA · INSTITUTE FOR RESEARCH IN BIOMEDICINE · BSC Barcelona Supercomputing Center Centro Nacional de Supercomputación · cnag · CRG Centre for Genomic Regulation · IGH · CNRS · The University of Nottingham UNITED KINGDOM · CHINA · MALAYSIA · EMBL-EBI

Multi-scale genomics challenges

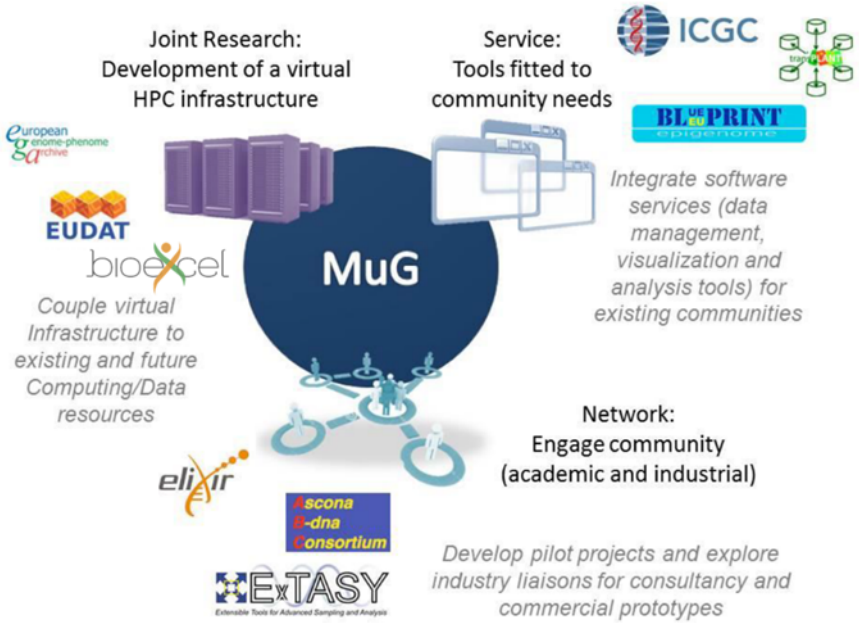
Exploring the genome beyond sequence

The MuG project will provide tools to integrate the navigation in genomics data from sequence (1D) to 3D/4D chromatin dynamics data:

- 1D genomics is a single-resolution problem that can be tackled using a common set of tools
- 3D and 4D genomics represent a multi-resolution physics problem.

3D and 4D genomics represent one of the greatest challenges for biology and biomedicine in the next decade.

Mission



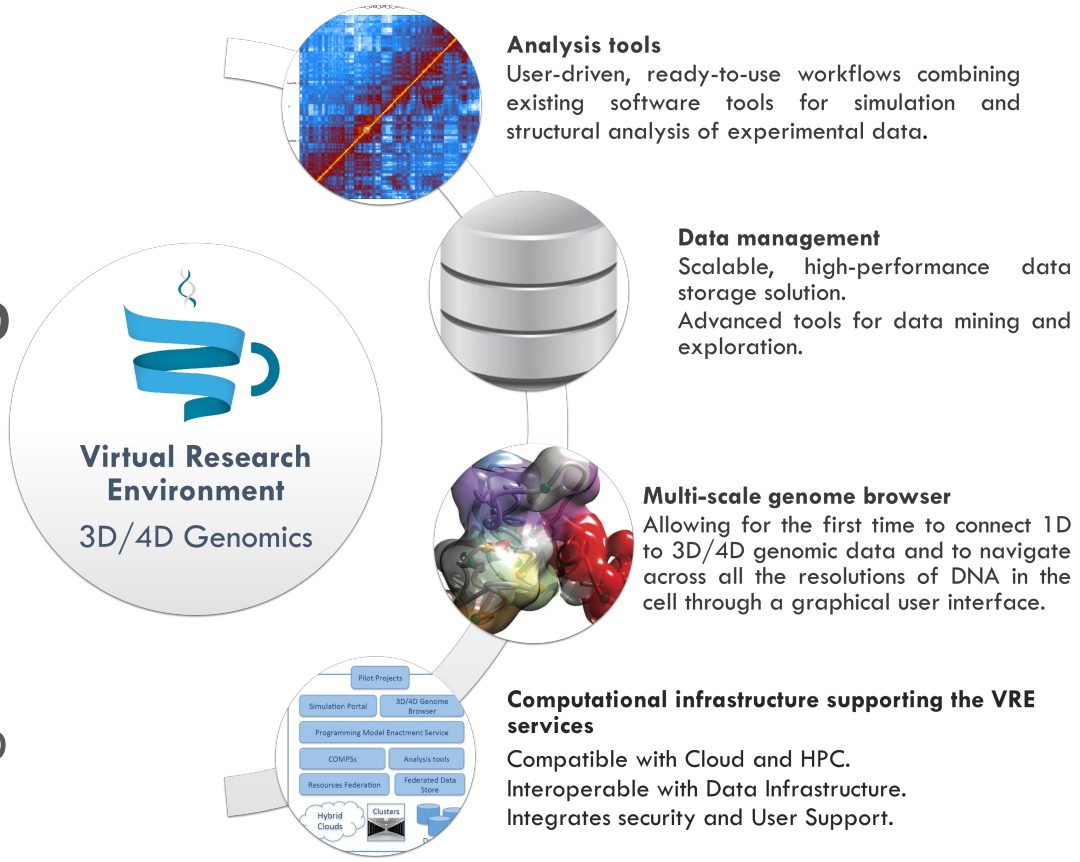
- ✓ **To stimulate and engage the active and growing biology community** to interact with the HPC world.
- ✓ To provide 3D/4D genomics users with **suitable tools to reduce current uncertainties** and inefficiencies.
- ✓ To develop the first **scalable infrastructure** for multi-scale (3D/4D) complex genomics
- ✓ To develop the first **multi-scale browser**.
- ✓ To ensure that the developed tools are embraced by the **Bio-community**

MuG Virtual Research Environment

http://www.multiscalegenomics.eu/MuGVRE/

Multiscale Complex Genomics VRE:

- Virtual Research Environment for the **3D and 4D genomics** community
- **Multiscale:** From sequence/annotation data, atomistic and coarse-grained molecular dynamics, to chromosome packing and organization



Expertise

Coordinating institution: Institute for Research in Biomedicine (IRB Barcelona)

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