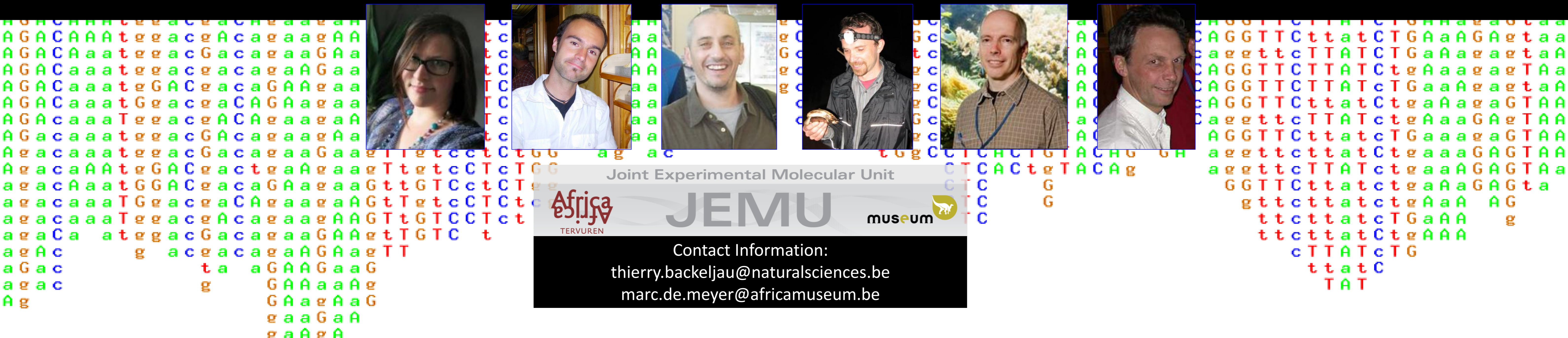# BeBoL: the Belgian Network for DNA Barcoding

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Joint Experimental Molecular Unit

JEMU

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The Belgian Network for DNA Barcoding (BeBoL), launched in 2011, provides a multidisciplinary platform including 27 partners active in DNA Barcoding and molecular systematics. The Network is financially supported by the Fund for Scientific Research Flanders (FWO). The Joint Experimental Molecular Unit (JEMU) is the executive task team of the Network. JEMU was launched in 2007 by the Belgian Science Policy Office (BELSPO) and is jointly run by the Royal Belgian Institute of Natural Sciences and the Royal Museum for Central Africa.

BGM (Botanic Garden Meise)
CBOL (Consortium for the Barcode of Life)
CRA-W (Walloon Centre for Agronomic Research)
CRC (Centre for Research and Conservation of the Royal Zoological Society of Antwerp)
ECBOL (European Consortium for the Barcode of Life)
FUNDP (UCL) (Laboratory of Evolutionary Ecology and Genetics)
ILVO (Plant-Crop Protection Group)
ILVO (Technology & Food – Food Safety Group)
INBO (Genetic Diversity Group of the Institute for Nature Conservation and Forest Research)
ITM (Institute of Tropical Medicine, Entomology Group)
JEMU-RBINS (Joint Experimental Molecular Unit, RBINS)
JEMU-RMCA (Joint Experimental Molecular Unit, RMCA)
KULeuven (Laboratory for Animal Diversity and Systematics)

NICC (Biology Group, National Institute for Criminalistics and Criminology)
SPHERE (Systemic Physiological and Ecotoxicological Research)
UAntwerp (Ecophysiology, Biochemistry and Toxicology Group)
UCL (Biodiversity Research Centre)
UGhent (Laboratory for Microbiology)
UGhent (Marine Biology Group)
UGhent (Phycology Research Group)
UGhent (Protistology and Aquatic Ecology Group)
UHasselt (Biodiversity and Toxicology Group)
ULB (Biological Evolution & Ecology Group)
ULg (Cyanobacteria Group)
UMons (Laboratory of Zoology)
VLIZ (Vlaams Instituut voor Zee)
VUB (Plant Biology and Nature Management Group)

Aims of BeBoL

• coordinating the efforts and developing the knowledge in the field of molecular systematics and DNA Barcoding in Belgium;
• exchanging expertise and providing training opportunities in this respect;
• stimulating joint research activities in which molecular systematics and DNA Barcoding are essential for resolving taxonomic and phylogenetic problems;
• centralizing and integrating DNA Barcoding activities in Belgium within the international frameworks of ECBOL, iBOL, TBI, QBOL, etc.

DNA Barcoding in a variety of organizms

COI gene sequencing for most metazoans and matK / rbcL genes sequencing for the plants.
But also:
- nuclear rDNA in Platyhelminthes (UHasselt, RMCA, RBINS)
- trnH-psbA and ITS2 for plants of the family Hydrocharitaceae (VUB)
- ND2 and H3 in terrestrial gastropods (RBINS, UAntwerp)

Part of this work was co-financed by:
a) DNA Barcoding initiatives: EU FP7 project, QBOL (Quarantine Barcode of life): ILVO (Plant-Crop Protection Group) and UGhent (Laboratory for Microbiology)
b) JEMU
c) FWO

Main DNA Barcoding partnerships of the Network

Reptiles: RBINS, UAntwerp
Forensic animals: NICC, RBINS, RMCA
Bacteria and Fungi: UGhent (Laboratory for Microbiology), UCL, RMCA, RBINS
Platyhelminthes: UHasselt, KULeuven, RMCA, RBINS
Nematoda: UGhent (Marine Biology Group), RBINS
Gastropoda: RBINS, RMCA, UAntwerp, INBO
Acari: UAntwerp, RBINS, ITM
Lepidoptera: RMCA, INBO, UAntwerp;
Trichoptera: UAntwerp (Ecophysiology, Biochemistry and Toxicology Group), RBINS
Hymenoptera and Isoptera: ULB, RBINS
Diptera: RMCA, RBINS, NICC, ITM, CRA-W
Amphipoda: RBINS, UCL
Fishes: RMCA, RBINS, KULeuven
Mammals (including forensics): UAntwerp, RMCA, RBINS, NICC

DNA Barcoding of problematic samples

• museum material, forensic / nature conservation research samples (RMCA, RBINS, KULeuven and CBOL)
• good practices for DNA sample and data storage, establishment of DNA collections (collaboration with NICC, INBO, UGhent (Marine Biology Group), UHasselt, FUNDP, ITM, CRC, CRA-W and RMCA (MOLCOL project))

Improving and developing new statistical and software tools for DNA Barcoding data

• RMCA, RBINS (both with the JEMU team), UAntwerp
• development of internet applications for organizing DNA Barcoding communities through scratchpads: EU FP7 project ViBRANT

Next Generation Sequencing (NGS) for DNA Barcoding

• KULeuven, RBINS, RMCA, INBO and UGhent with KULeuven and UAntwerp acting as NGS core facilities
• testing the use of museum samples for NGS (AGORA-MOLCOL project)
• Targeted Amplicon Sequencing (TAS) of syrphids (RMCA, RBINS)

Events organized or supported by BeBol

2012: Congress - Third European Conference for the Barcode of Life (Brussels)
2013: Symposium- MetaBarcoding of Environmental Samples (Brussels)
2013: Workshop- ViBRANT tools for the DNA taxonomist (Brussels)
2013: Symposium- Next Generation Sequencing, Applications in Science (Tervuren)
2014: Symposium- Comparative Barcoding (Leuven)
2014: Workshop- Variant Discovery in Next-Generation Sequencing Data (Brussels)
2014: Congress- DNA in Forensics (Brussels)
2014: Workshop- Genetic Analysis Using R (Leuven)
2014: Workshop- Genome Analysis ToolKit (Brussels)

A more exhaustive list of BeBoL Network activities is available on the BeBoL website (http://bebol.myspecies.info).