

# RGB : The Guadeloupean Network of BRCs

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## Rational :

Guadeloupe is the only French overseas territory with biological resource centers (BRCs) representing 4 different kingdoms (Micro-organisms and Vectors, Plants, Animals and Humans). Initiated as early as 2006, these BRCs have federated around the project to create the Guadeloupe BRC Network (GBR) proposed by Karubiotec™ in 2021. This network aims to improve the visibility of local BRCs in the research projects carried out thanks to the biological resource collections they make available. It is the guarantee of the biodiversity of the island's genetic heritage and allows Guadeloupean researchers to be a force of proposal in the submission of multi-thematic projects. It is consistent with the national desire to develop biobanks (Health Innovation Plan 2030) and with the "One Health" research axis (ERDF PO 2021-2027). Communication on the activities of local BRCs to professionals, scientists, the educational world and the public is essential for a better understanding of the world of BRCs, international research issues and interactions between the different environments. The emergence of new infections in various kingdoms recently demonstrates the need for a global approach. The RGB has essential assets for increasing the awareness of research consortia to multi-thematic approaches based on these structuring tools, which have technical know-how and scientific expertise, combined with ethical and regulatory knowledge. The professionalization of Guadeloupe's BRCs is a proof of quality and a criterion of respect for the ethics of the heritage of which they are guardians.

The MiVeC BRC is attached to the platform of the Center for Research and Monitoring of Vector-borne Diseases in the Caribbean (CRVC) of the ASTRE unit. Six different biological collections, totalling just over 140,000 samples, are stored there: Bacteria, Mosquitoes, Ticks, Eukaryotic cells (mostly bovine), DNA and Serum. The world Ehrlichia ruminantium collection is linked to the World Organization for Animal Health for which the CRVC is a world reference laboratory. The Mosquito collection gathers very diverse species, originating from Guadeloupe which, in addition to their patrimonial interest, have an economic and sanitary interest in terms of vector control for Guadeloupe and the countries of the Caribbean zone. The BRC MiVeC thus ensures the conservation of the various biocollections for the implementation of research projects on animal and zoonotic diseases.



World Organisation  
for Animal Health  
Founded as OIE

**MiVeC**  
Micro-  
organisms  
and Vectors



**TROPICAL  
PLANTS**  
Agronomy

As guarantor of Guadeloupe's agricultural heritage, the **Tropical Plants** BRC is the holder of the world's largest collection of banana trees with more than 400 varieties or wild types. It preserves the yam collection holding the greatest diversity of varieties of the species *Dioscorea trifida* and representative of the world diversity of the species *D. alata*. This BRC also preserves collections of mango trees (nearly a hundred varieties) and sugar cane (335 varieties). It is organizing the rescue of an important pineapple collection (more than 373 varieties) threatened on a global scale by viral diseases. In 2020 it integrated the GUAD Herbarium heritage collection (14,400 parts). These plant genetic resources are used in research projects to assess the impacts of pests, diseases, pollution and climate change on the preservation of this heritage and the risks if it is lost. These collections serve the sustainable agricultural development of Guadeloupean producers.

The **CARARE** BRC is dedicated to the conservation of collections of biological and reproductive material of domestic animal species. It has a dual vocation: The conservation of various biological materials (blood, serum, plasma, tissues, faeces, etc.), used in the framework of research programs carried out by the ASSET research unit which works on animal genetics, physiology or immunology, for the understanding of adaptation, production and resilience mechanisms of animals in tropical environment. The second is to maintain the domestic animal biodiversity, through the conservation of seeds and embryos of local Creole breeds, which are of great heritage interest for breeding in Guadeloupe. CARARE Also participates in the national network *CRB-Anim*, and the *AgroBRC* infrastructure, agronomic resources used in research

**CARARE**  
Genetic  
ressources  
from animals

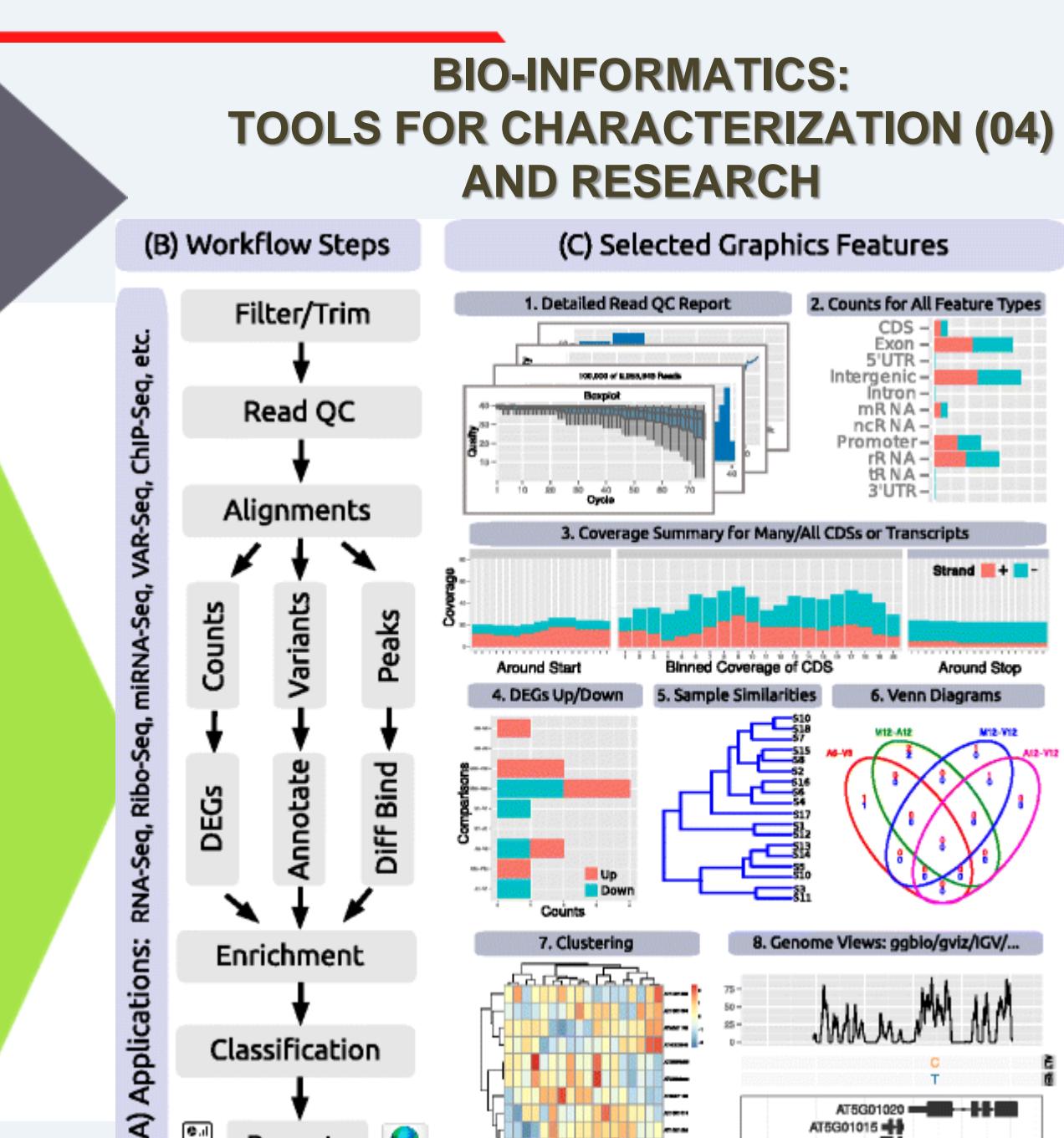
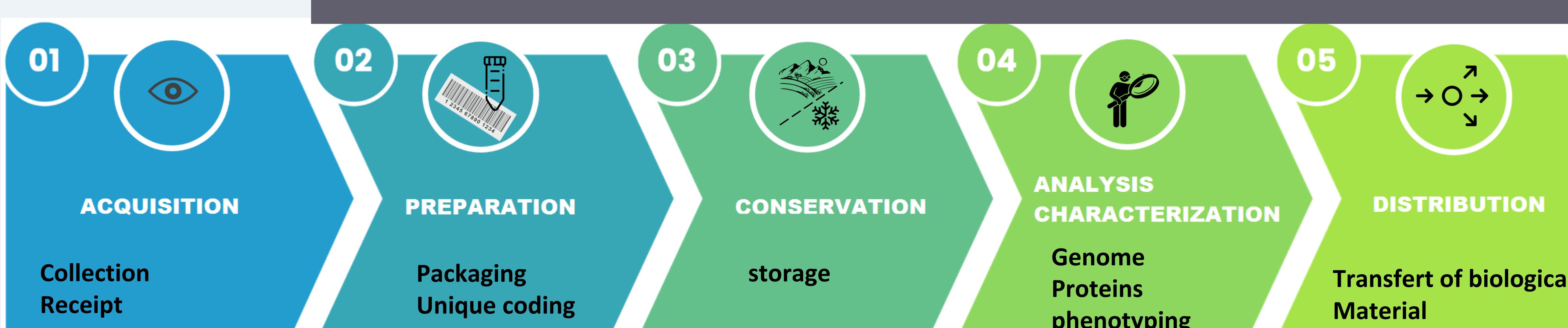


**Karubiotec**  
Human Health



The Human Health BRC Karubiotec™, manages biological resources from the human body collected for research purposes. The biological collections are spread over our public health themes: cancers, cardiovascular and metabolic diseases, neurodegenerative diseases, infectious diseases, environmental diseases, and immuno-haematological diseases. They include products from the human body such as serum, plasma, peripheral blood cells and tumour tissue. More than 60,000 samples are currently stored in the biobank. Any patient or donor who wants to contribute to the advancement of research in Guadeloupe can, if they so wish, donate their samples. The Guadeloupe population has its own characteristics and a higher prevalence of certain pathology than in France. Understanding the mechanisms and identifying the risk factors will enable better prevention and improved patient care.

## MAIN MISSIONS



These missions are carried out thanks to the financial support of the Guadeloupe region, with the exception of the Human Health BRC which receives funding from the DGOS. In addition, all the BRCs receive funding for research projects. The other missions of the BRCs are communication and the valorization of resources with research teams or by carrying out its own research projects in the framework of training (university or professional training courses, etc.) but also through communication with the public. By forming a network, the BRCs of Guadeloupe enable research to cover all the sectors necessary for understanding the impact of the environment on human health. Some members of the RGB interact within the KarubioNet regional network dedicated to bioinformatics, enabling increased collaboration on research projects. It is within the framework of the future ONE HEALTH Guadeloupe project, supported by European subsidies, that the foundations of structuring will be laid at the archipelago level.



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