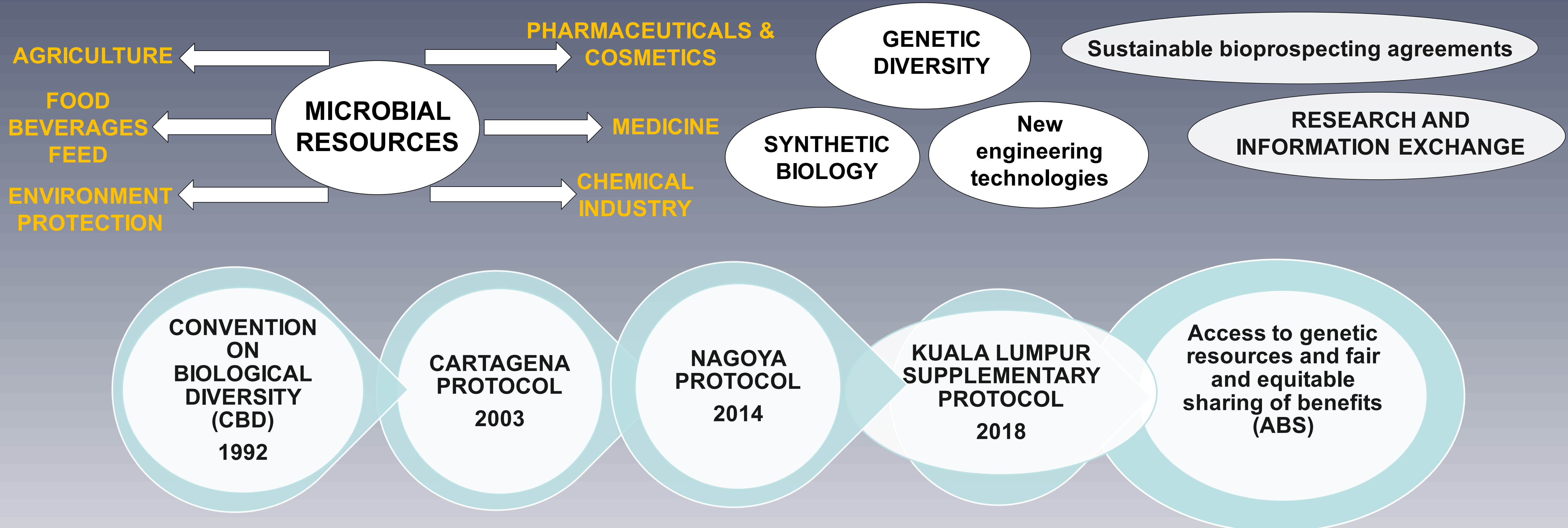




Microbes and Policy



**Caterina Tomulescu^{1,2}, Mișu Moscovici¹, Roxana Stoica¹,
Mariana Vladu^{1,2}, Maria Petrescu¹, Adrian Vamanu^{1,2}**
¹National Institute for Chemical-Pharmaceutical Research&Development, ICCF Bucharest, Romania
²University of Agronomic Sciences and Veterinary Medicine, USAMV Bucharest, Romania



CULTURE COLLECTION OF INDUSTRIAL IMPORTANCE MICROORGANISMS

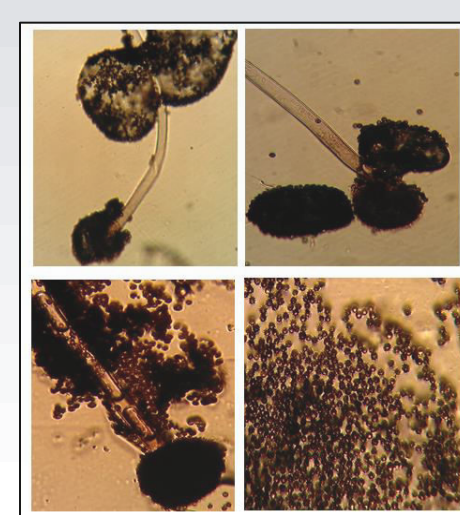
CMII-ICCF-WFCC 232 (Romania)

➤ **Founded in 1949, ICCF** conducted a successful activity of R&D, with more than 500 patents for inventions and technologies, and it coordinated around 20 microbial biotechnology national projects, over the last 10 years.

➤ **Established in 1952, the CMII collection holds over 400 strains of bacteria, yeasts and fungi** as producers of pharmaceuticals and similar ingredients, biopolymers, amino acids, enzymes, single-cell proteins, vitamins, bio-pesticides, and bio-stimulants.*

➤ **CMII-WFCC 232: registered at the World Federation of Culture Collections since 1981, and since 2014, CMII is a collaborating party and a national node in Romania, on behalf of Microbial Resource Research Infrastructure – MIRRI.**

A PIECE OF GENETIC HISTORY...



G. Mendel – 1866 – *Pisum sativum* – “cell elements”
J.F. Miescher – 1869 – DNA (“nuclein”)

Modern genetics

Hugo de Vries, Carl Correns, Erich von Tschermak – 1900 –

“mutation”, principles of heredity, and disease-resistant hybrids

W.S. Sutton and T.H. Boveri – 1902 – 1903 – genes and chromosomes

W. Johannsen – 1909 – “gene”, “phenotype”, “genotype”

T.H. Morgan – 1910 – *Drosophila melanogaster* and the chromosome theory

H.J. Muller – 1926 – gene concept → theory of evolution

“Neoclassical period”

1930-1960

D.M. Bonner – 1950 – genetic recombination in fungi

J. Watson and F. Crick – 1953-1954 – DNA double-helical structure

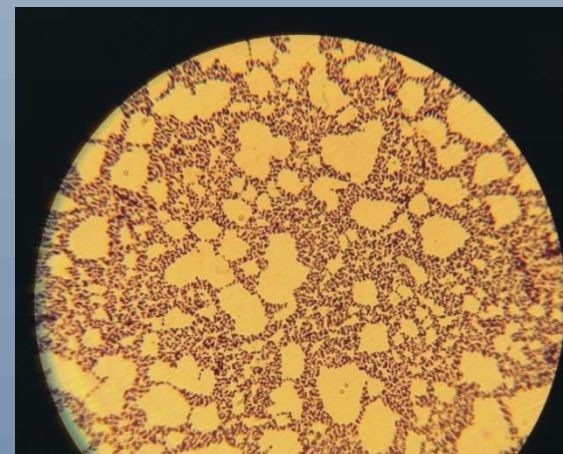
I.P. Crawford and C. Yanofsky – 1958 – “recon and muton”, nucleotide pair

F. Jacob and J.L. Monod – 1961 – mRNA

“one gene – one mRNA – one polypeptide”

F. Sanger – 1977 – Sanger sequencing period

K. Mullis – 1985 – Polymerase chain reaction

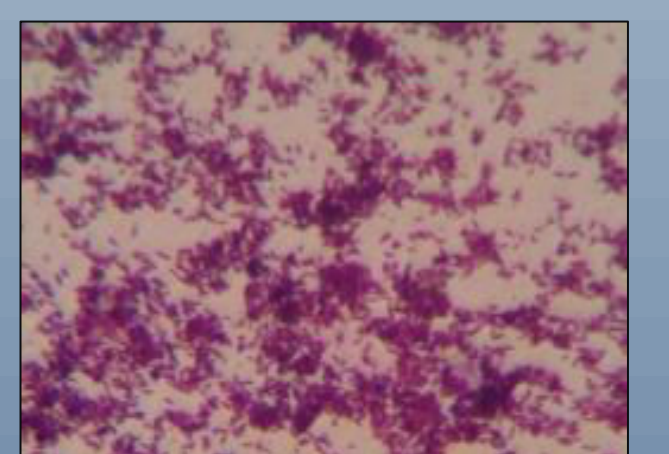


Genome sequencing

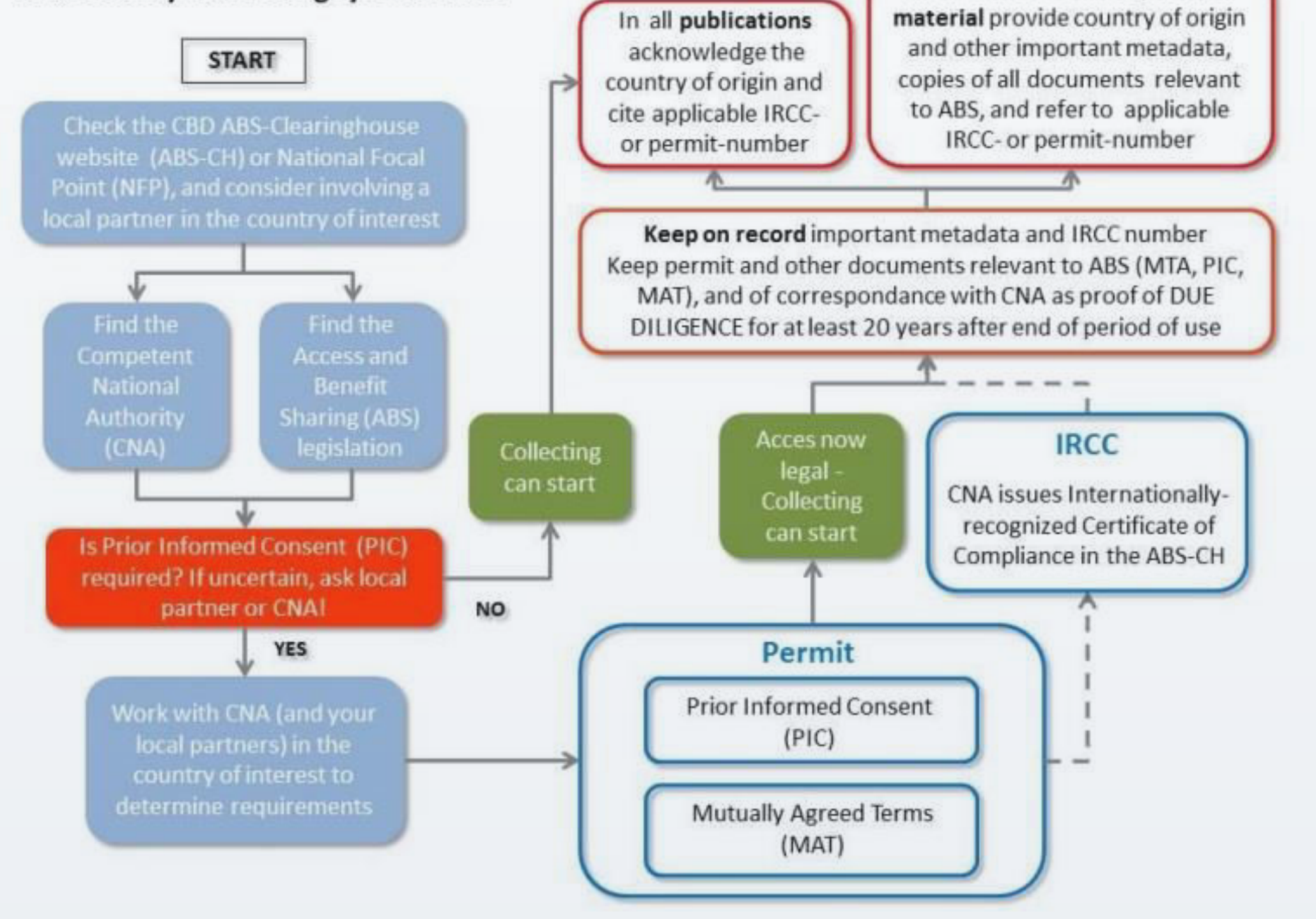
1990s

2nd, 3rd generation sequencing platforms

2004 - present



Guidance for collecting material *in situ* in a country that is Party to the Nagoya Protocol



Source:

https://www.mirri.org/files/ABS_best_practice_manual.pdf

MIRRI project

ESFRI roadmap

Construction phase

ERIC European Research Infrastructure

ABS management – implementation of policies

- Institutional level -

Reg. (EU) 511/2014

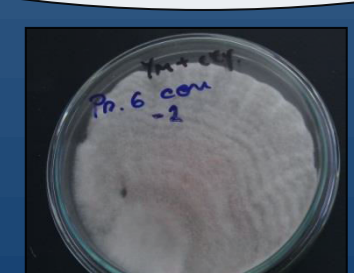
Reg. (EU) 2015/1866

Conservation and sustainable use of biological resources



BBMRI-ERIC

Biobanks and Biomolecular Resources Research Infrastructure Consortium



* Online catalogue: http://cfarm.ncpri.ro/sct_1/page_58/culture_collection_of_industrial_importance_microorganisms-cmii.htm

1. Durmaz A.A., Karaca E., Demkow U., Toruner G., Schoumans J., Cogulu O. 2015. Evolution of genetic techniques: past, present, and beyond. BioMed Research International. Article ID 461524. <http://dx.doi.org/10.1155/2015/461524>

2. Portin P. and Wilkins A. 2017. The evolving definition of the term gene. Genetics, 205: 1353-1364

3. <https://mirri.org/>