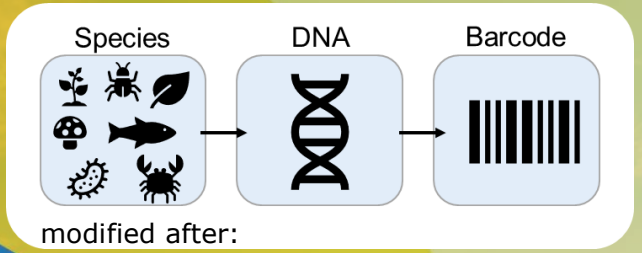
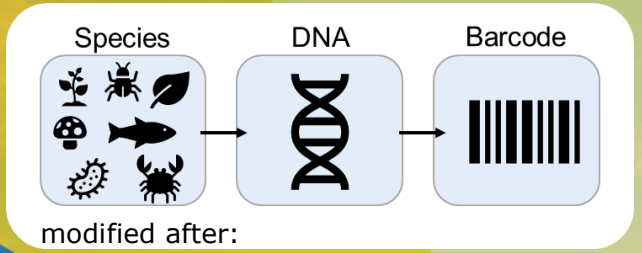


modified after:
https://en.wikipedia.org/wiki/Metabarcoding

The iDiv-Barcoding Initiative (iBarc)

Background:

Metabarcoding is a widely used tool for taxonomic determination, detection of hidden biodiversity, monitoring, and assessment of community composition in space and time, ranging from viruses, bacteria, protists, and fungi to animals and plants from different environments.



modified after:
https://en.wikipedia.org/wiki/Metabarcoding

The iDiv-Barcoding Initiative (iBarc)

Many groups in iDiv already use barcoding, but a concerted and integrative barcoding effort, including conceptual and practical exchange was missing so far.

A first iDiv workshop on 25 April 2022 identified a strong need and interest to exchange knowledge, to discuss conceptual aspects and thereby foster integration across different organisms, research areas, and iDiv locations.

The iDiv-Barcoding Initiative (iBarc)

Meanwhile more information from interested iDiv-colleagues was collected in a Google document:

https://docs.google.com/spreadsheets/d/1Lb9T-7p7GzC4NSemQYpgmQi0jb_IeF56CajvZri8SK0/edit?usp=sharing

Coordination team strengthened by Luis Daniel Prada-Salcedo, microbial molecular ecologist at UFZ and head of the iDiv “MetaGen”-Support

Martina Herrmann, Luis Salcedo and Martin Schlegel are now coordinating future activities of our endeavor

The iDiv-Barcoding Initiative (iBarc)

Based on the collected information and ideas we drafted a more detailed concept that we want to discuss and establish at iDiv in a second workshop in October 2022

Funding application (9450.-€) for 1.5 days workshop in October to the Scientific Events Call passed first round of evaluation

Final decision of the Flexpool Board in about 2 weeks

The iDiv-Barcoding Initiative (iBarc)

We intend to join forces to bring together groups of iDiv-scientists to

- strengthen and further develop metabarcoding approaches for biodiversity research at iDiv
- provide support of metabarcoding work ongoing in working groups of the iDiv consortium
- develop and establish a common overarching barcoding project at iDiv
- suggest to the SSB how Barcoding could be permanently implemented in iDiv

The iDiv-Barcoding Initiative (iBarc)

Strengthen and further develop metabarcoding approaches for biodiversity research at iDiv

Discussion of theoretical concepts:

- taxonomic assignments (concepts of OTU, ASV, species-term)
- harmonizing requirements and criteria for the species concept across taxonomic groups
- harmonizing molecular and with traditional measurements in biodiversity studies

The iDiv-Barcoding Initiative (iBarc)

Strengthen and further develop metabarcoding approaches for biodiversity research at iDiv

Development of standard operation procedures:

- sampling strategies
- sequencing technologies
- primer design
- quality assessment
- filtering of data
- reference databases
- functional assignments (sequence to function)

The iDiv-Barcoding Initiative (iBarc)

Provide and coordinate support of metabarcoding work ongoing in working groups of the iDiv consortium

Setting the stage for hands-on support of barcoding applications

seminars
workshops
lab-exchange-offers
qualification offers for young iDiv-researches (yDiv-courses, summer schools…

The iDiv-Barcoding Initiative (iBarc)

Develop and establish a common overarching barcoding project at iDiv

Relates to iDiv Research Area "Molecular Biodiversity and Adaptation"

- especially research question 2: "What are the molecular mechanisms underlying functional links in highly diverse microbiomes and their hosts?"
- and 3: "How does environmental change impact the evolutionary processes underpinning local adaptation, population structure and speciation?"

The iDiv-Barcoding Initiative (iBarc)

Develop and establish a common overarching barcoding project at iDiv

Suggestions made so far:

- (large scale) spread of microbes/viruses via animals, plants; interface human-environment (Chatzinotas); (functional, evolution)
- Comparison of metabarcoding and imaging flow cytometry for microscopic particles to identify what is there and what is physiologically active (Dunker) (monitoring, functional?)
- Linking biodiversity to ecological interactive networks (Jochum) (could be overarching title)

The iDiv-Barcoding Initiative (iBarc)

Develop and establish a common overarching barcoding project at iDiv

Suggestions made so far:

- Lage-scale bacterial community profiling across taxa (insects, esp. beetles) (Kaltenpoth) (monitoring)
- How floral diversity interacts with flower-visitor diversity to shape virome/microbiome of invertebrate community (Paxton)(functional)

The iDiv-Barcoding Initiative (iBarc)

Develop and establish a common overarching barcoding project at iDiv

Existing initiatives:

- IBOL - International barcode of life project, coordinates and (technically) supports various initiatives (e.g. Fish Barcode of Life Initiative (FISH-BOL), GBOL (German Barcode of Life, 2012-2018), ABOL (Austrian Barcode of Life, ongoing).
- In summary, **the goal is monitoring of biodiversity** (e.g. IBOL- Planetary Biodiversity Mission Cost: $500 million, timeline: 2026-2045, goals: complete the census of all multicellular species

The iDiv-Barcoding Initiative (iBarc)

Develop and establish a common overarching barcoding project at iDiv

Our approach should markedly differ:

- Linking molecular biodiversity to ecological interactive networks
- …

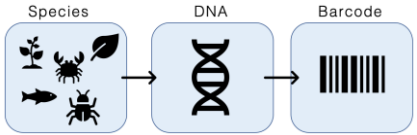
The iDiv-Barcoding Initiative (iBarc)

Suggest to the SSB how barcoding could be permanently implemented in iDiv

Informal groups?

Platform?

Support unit? New concept for MetaGen?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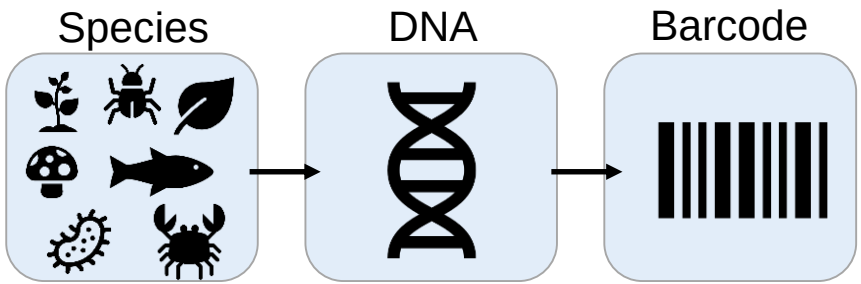
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