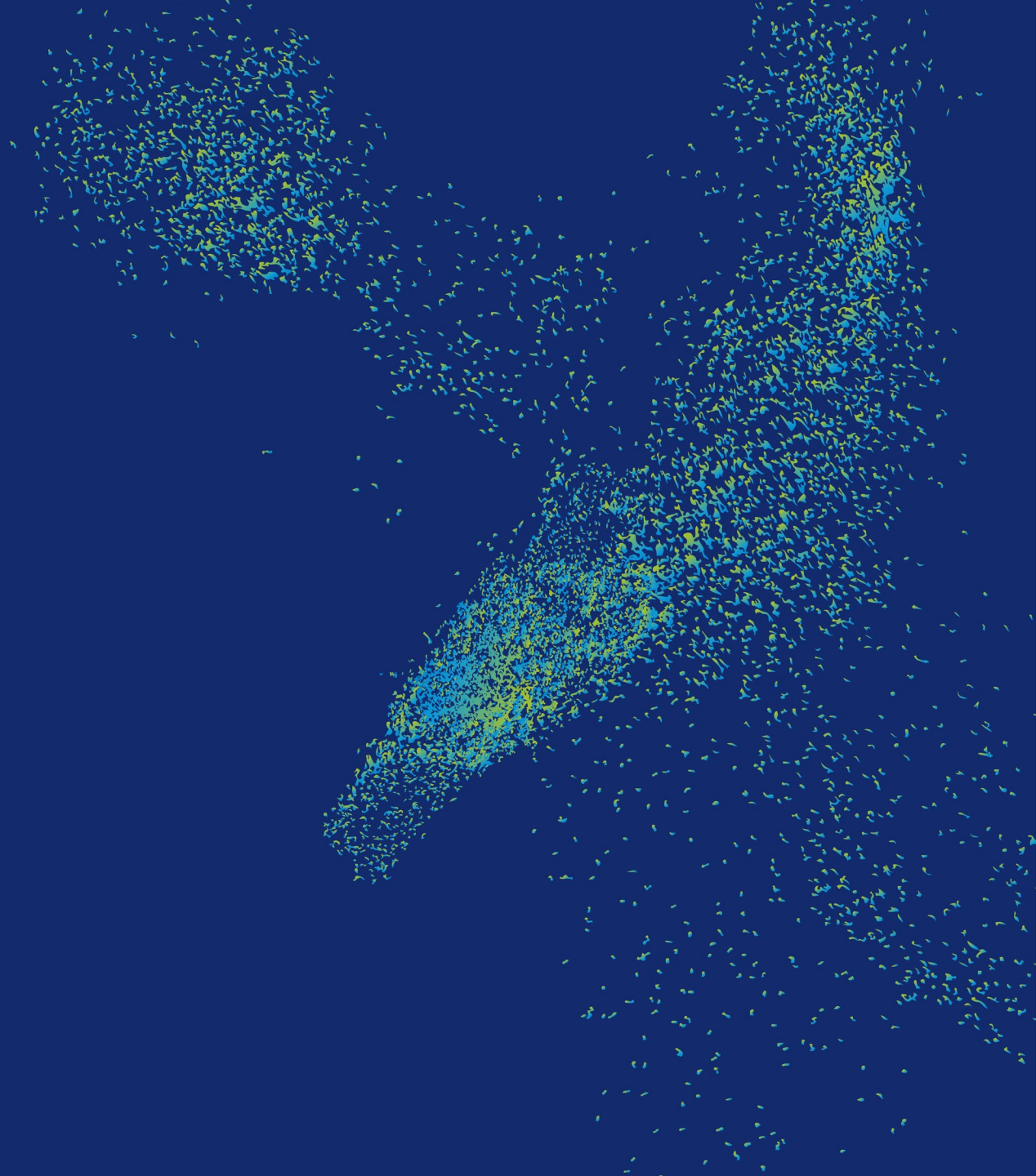
HUMAN TECHNOPOLE

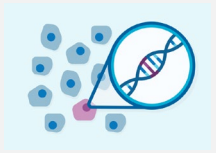
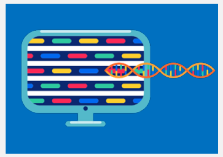
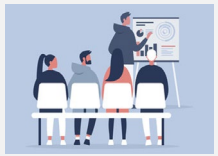
National Facility for Genomics

Clelia Peano, Head of National Facility for Genomics, Human Technopole

For technical enquiries about the services:
nf.genomics@fht.org



National Facility for Genomics objectives and achievements:

What our objectives are:	How we are achieving them:
 1. Establish robust experimental and analytical workflows	→ Set up of robust infrastructure and workflows
 2. Provide services in diverse biological areas	→ Construction of a highly qualified team
 3. Implement new methods and innovative technologies	→ Offering a broad portfolio of constantly updated technologies
 4. Offer training opportunities and specialized workshops.	→ Organisation of trainings on technologies and applications

Infrastructure

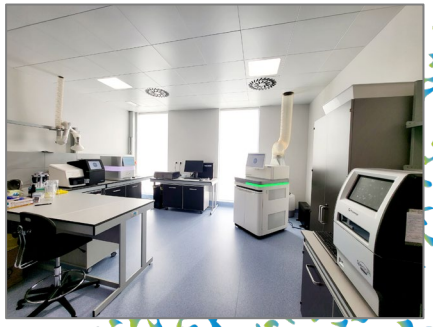
Total Lab space 300 sqm

2 samples processing laboratories

1 automation laboratory

1 single-cell technologies laboratory

2 sequencing laboratories



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Technology portfolio

Technologies for Automated samples/libraries preparation:

- DNA/RNA extraction and QC
- Automated library preparation

Technologies for High Throughput sequencing:

- Short reads generation
- Long read generation

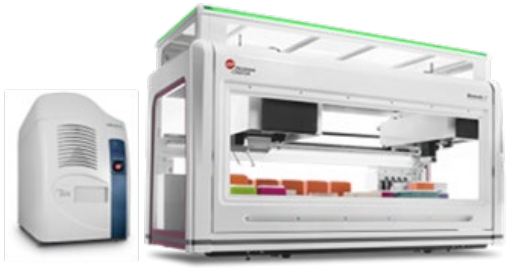
Technologies for single-cell and spatial multi-omics analysis:

- Single-cell sequencing
- Spatial multi-omics analysis

Expansion of technology portfolio

Technologies for Automated samples/libraries preparation:

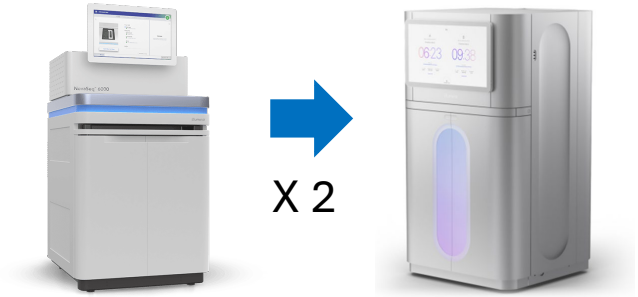
- Increase production capacity
- Reduce costs



X 2

Technologies for High Throughput sequencing:

- Increase sequencing throughput
- Reduce costs



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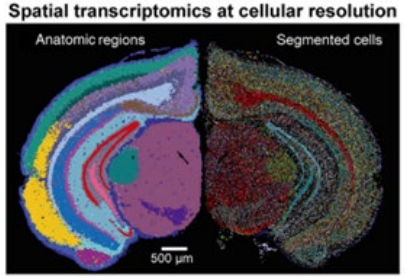
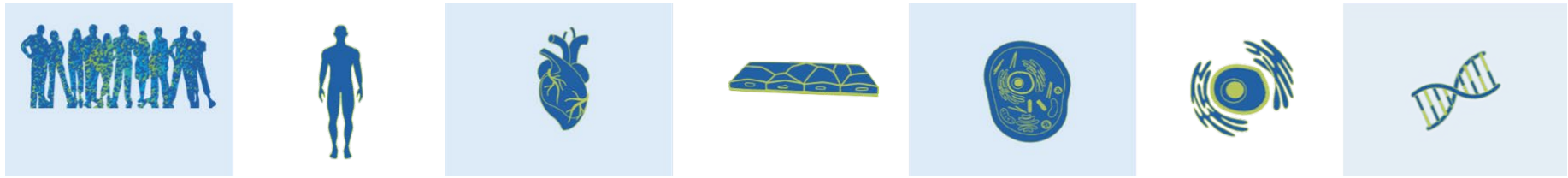
Technologies for single-cell and spatial multi-omics analysis:

- Increase resolution
- Improve data quality

- StereoSeq
- Visium HD



Team expansion and skills enhancement



IU1 High-throughput Sequencing

- Genomics
- Transcriptomics
- Epigenomics
- Metagenomics

IU2 Multi-omics Technologies

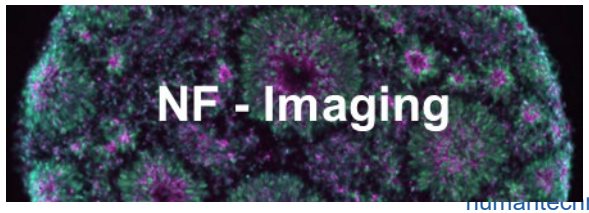
- Single-cell sequencing
- Spatial multi-omics analysis
- Long read sequencing

IU4 Technology Development

- Standardization Optimization of custom protocols
- Co-development of new methods and technologies

IU3 Computational Genomics

- Data pre-processing
- Primary Data analysis
- Pipelines development



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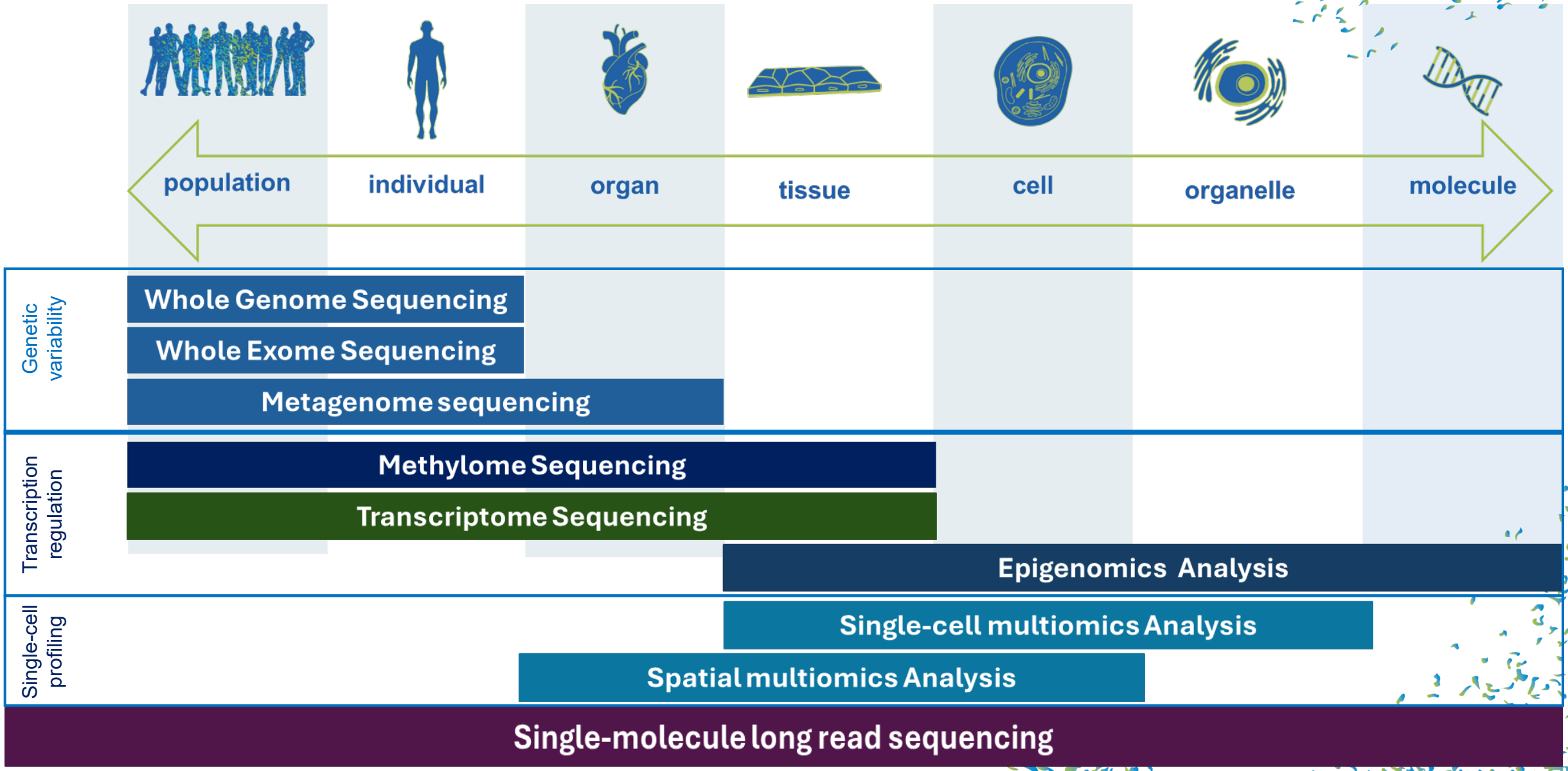
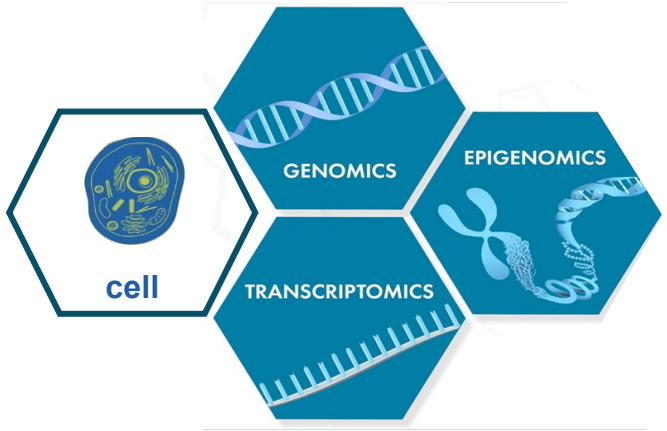
Services for bridging biological scales

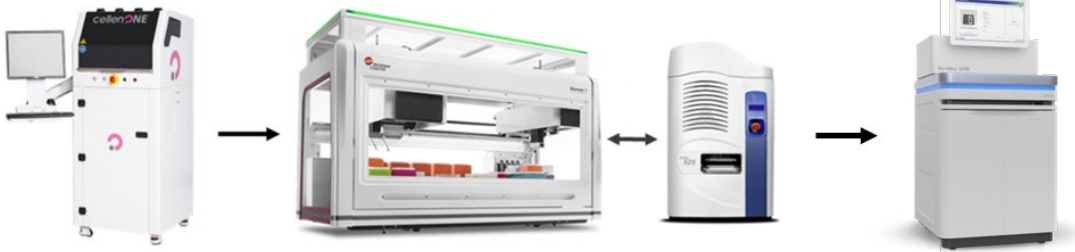


Implementation of new services

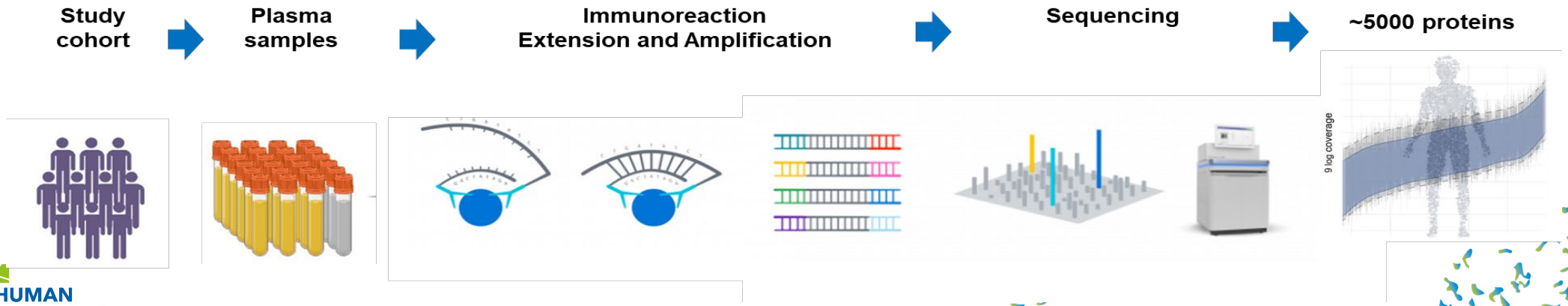
Multi-omics analysis at single-cell level:



Experimental Workflow



Empowering Genomics with Proteomics:



Workflow to manage internal and external projects

1. Project start

User

servicenow

NF-Project managers

1. Communication
2. Planning activities
3. Resources allocation

2. Project implementation

LIMS

Sequencing

BCL Files

nextflow

GitLab

NF-Lab Teams IU1-IU2-IU4

1. Manage samples
2. Run laboratory workflows
3. Generate sequencing data

NF-Computational Team IU3
NF-Data Handling

1. Pre-processing
2. Primary data analysis
3. Development

3. Project conclusion

servicenow

User

NF-Project managers

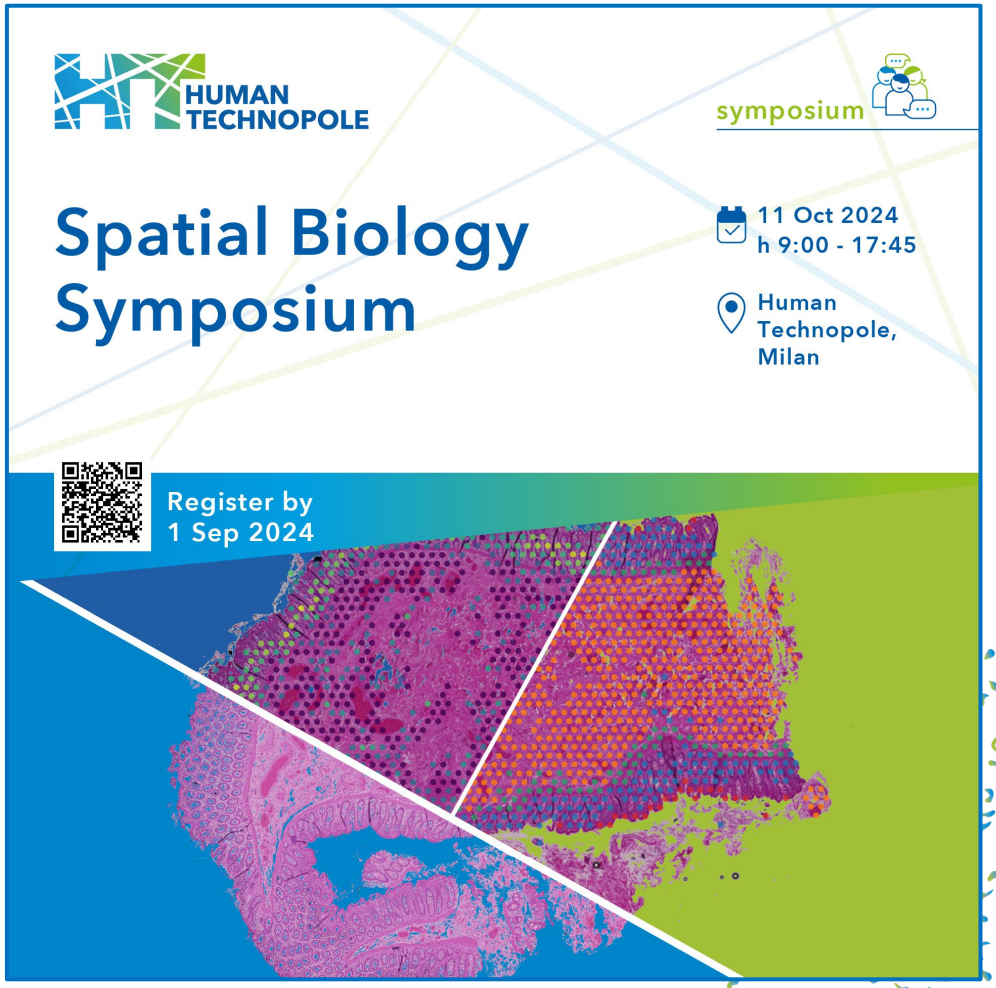
1. Results delivery
2. Users' feedback
3. Reporting

Training activities

- Workshop – Symposia:
  - Theoretical
  - National and International speakers
  - 1 day

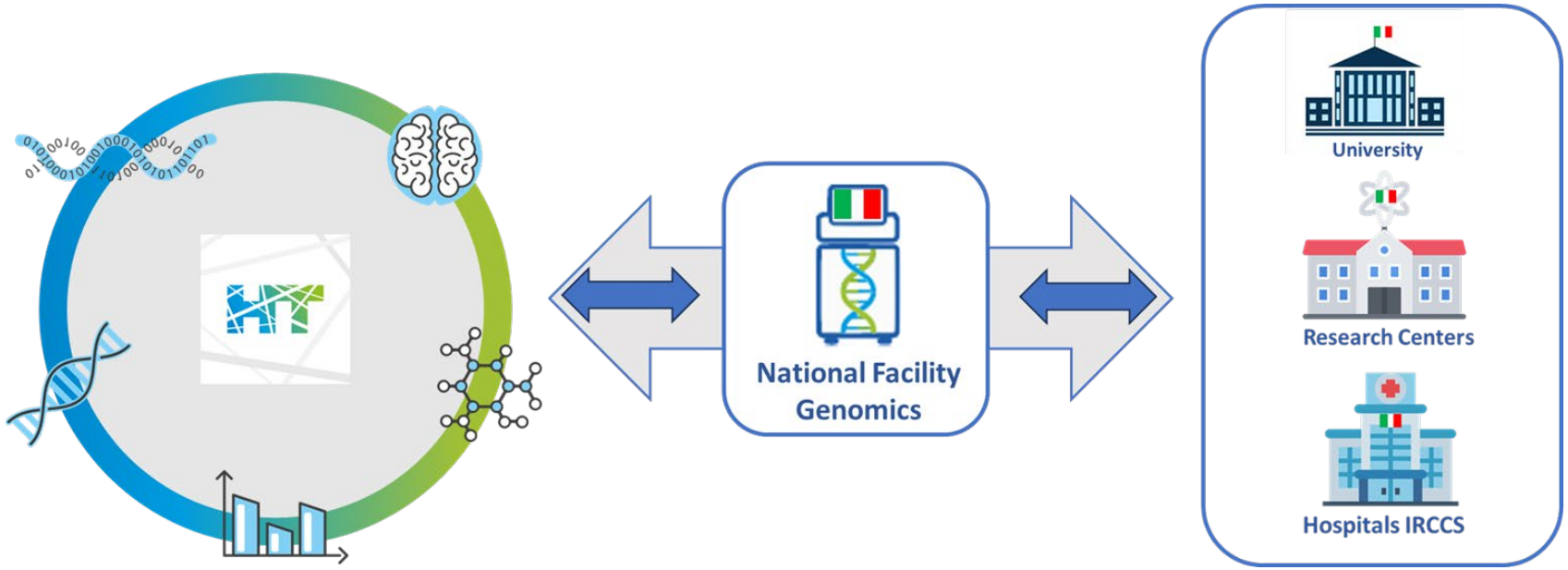
- Training sessions :
  - Theoretical and practical
  - Facility Staff and FAS
  - 3 days

- Master classes:
  - Theoretical and practical
  - Facility Staff and FAS
  - 5 days



Final Goals

1. Empower the Italian scientific community to tackle scientific challenges and accelerate groundbreaking discoveries in all domains of genomics research
2. Make genomics research in Italy competitive at an international level



3. Promote a dynamic ecosystem that encourages collaboration, knowledge sharing, and innovation among researchers nationwide.

Acknowledgements

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Thank you

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