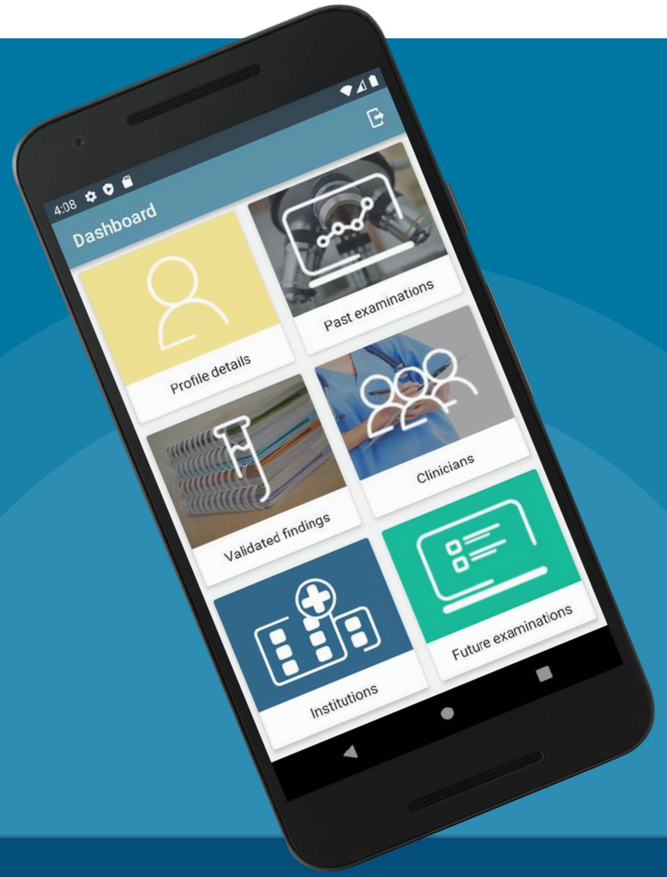
CTA

Cancer Treatment Assistant



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Objectives

01 Personalized, scan tracking of patient's health status.

02 Storage of test results

03 Tracking of medical treatment

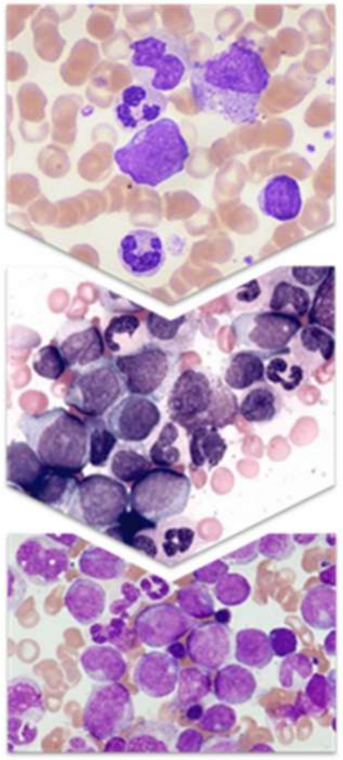
04 Efficacy test of therapy

05 WEB, Android / iOS

Research partner:
SOTE I. Department of Pathology and Experimental Cancer Research

CML
Chronic Myeloid Leukemia

Phases of CML Development



Chronic Phase

Accelerated Phase

Blast Crisis

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User Management

Clinician

Lab Assistant

Patient

- Authentication and authorization
- Clinician and Patient contact management
- Institution management (hospital - lab)

Diagnostic Management

- Master data management of disease types and health condition groups.
- Establishing patient diagnosis.
- Determination of health status and progress of the disease.

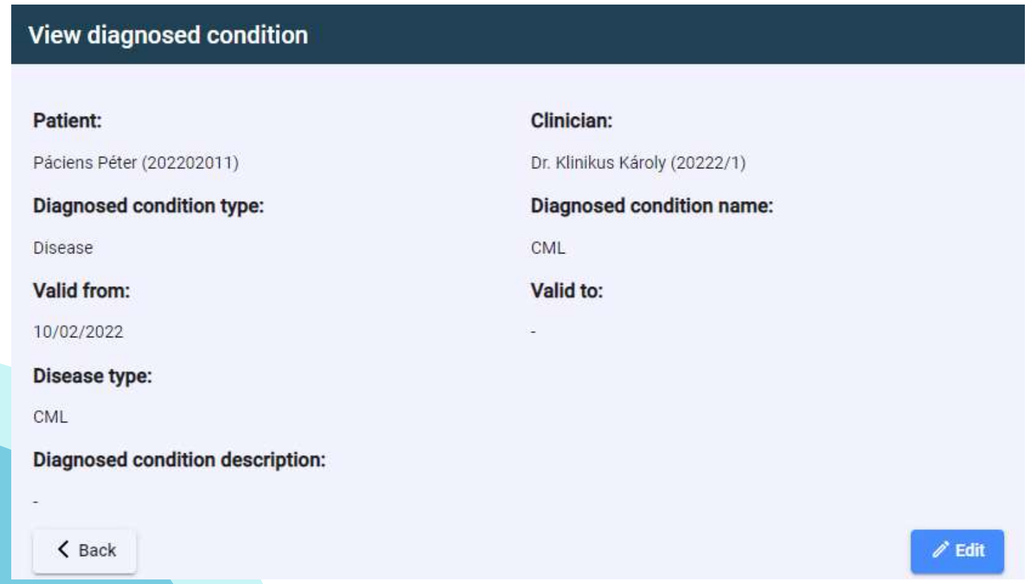
Therapy Tracking

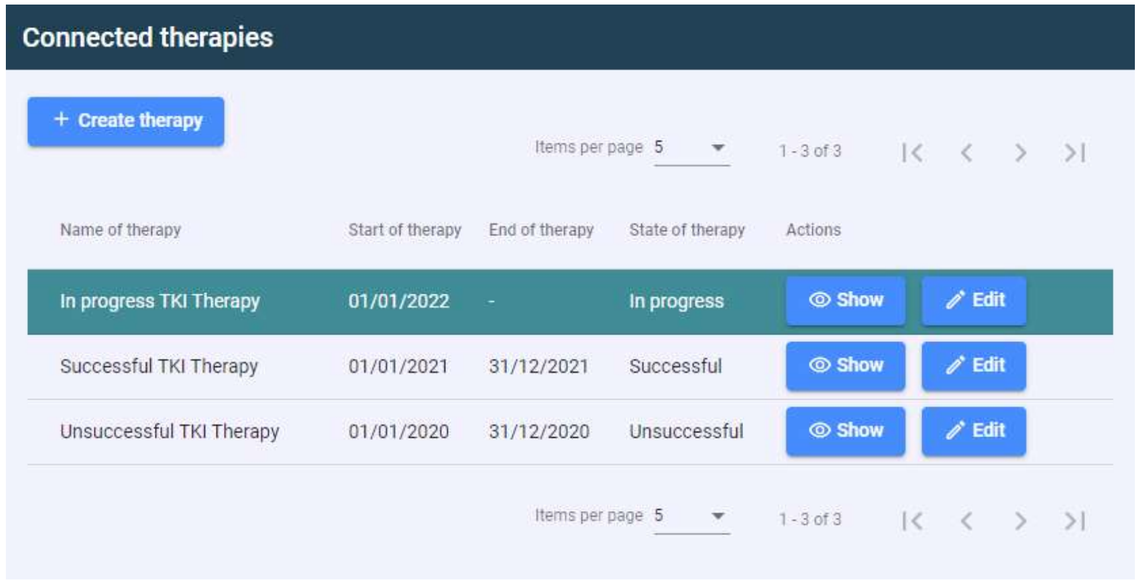
- Tracking of medical treatments of different diseases.
- Follow-up of clinical trials and examinations based on classification scheme.
- Analysis of efficacy of treatments and therapies.

Cancer Treatment Assistant

Data of diagnosed condition

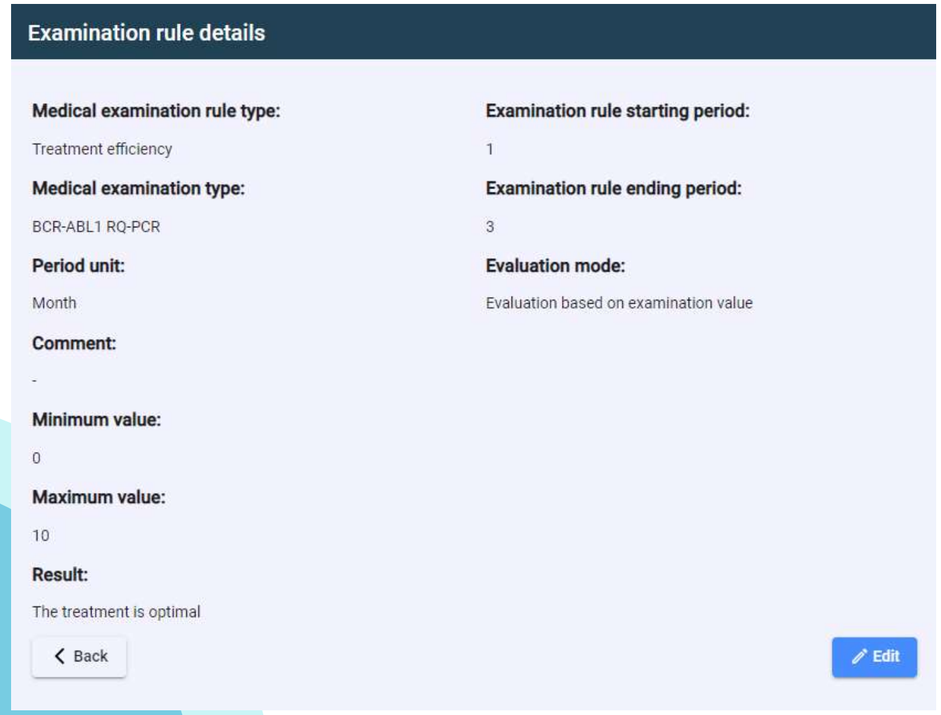
Therapies associated with diagnosed condition



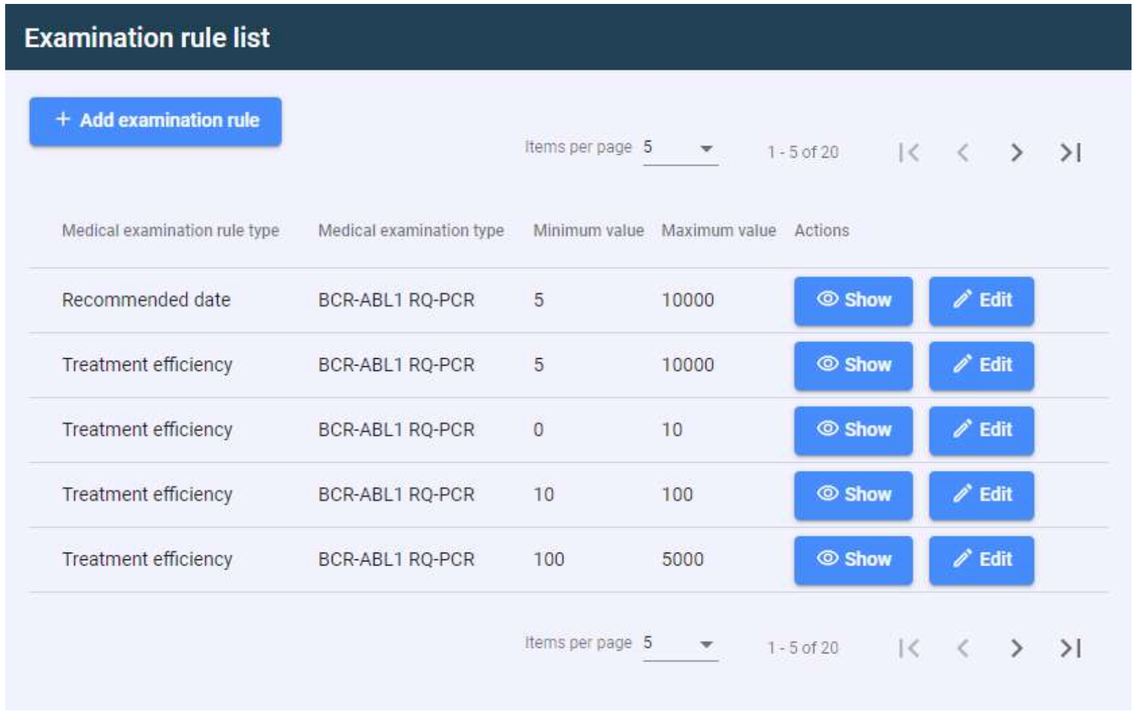


Cancer Treatment Assistant

Assessment protocol

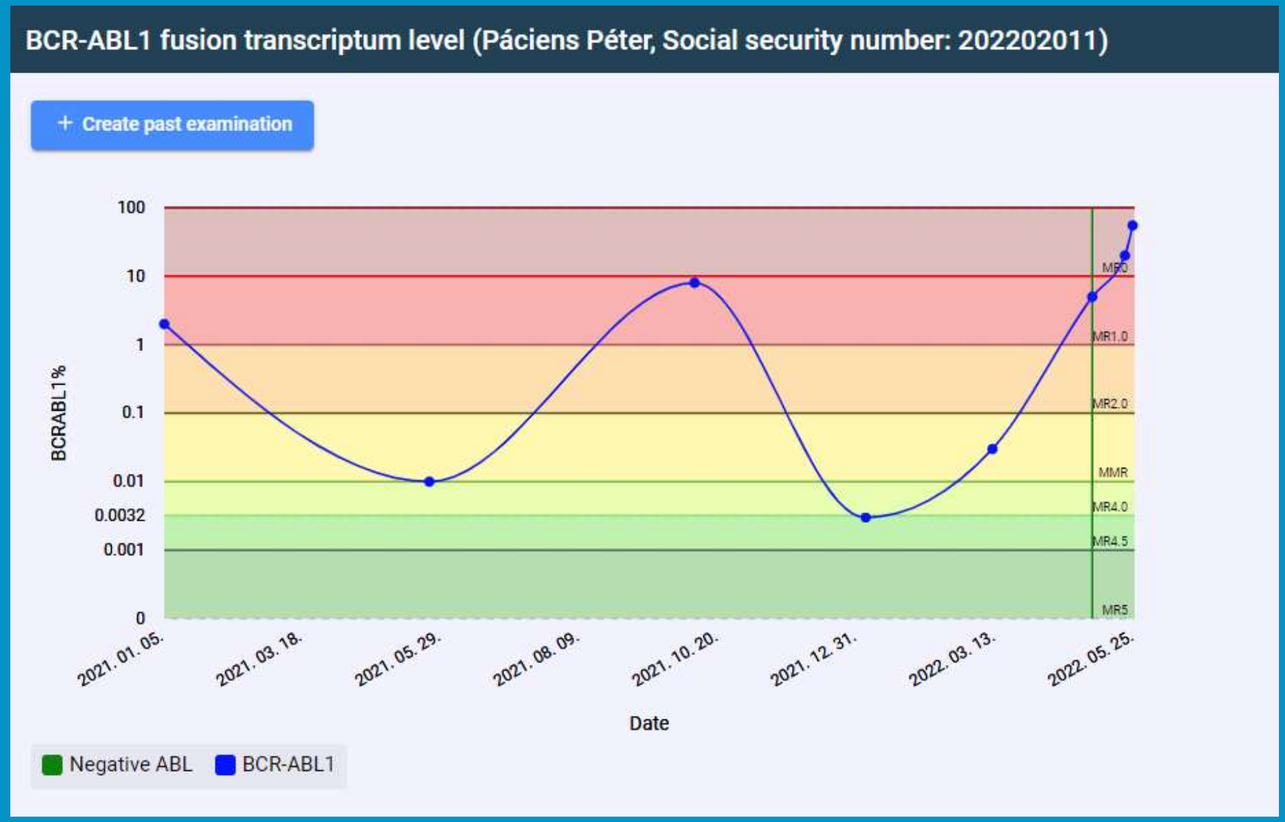


List of assessment protocols



Management of Clinical Results

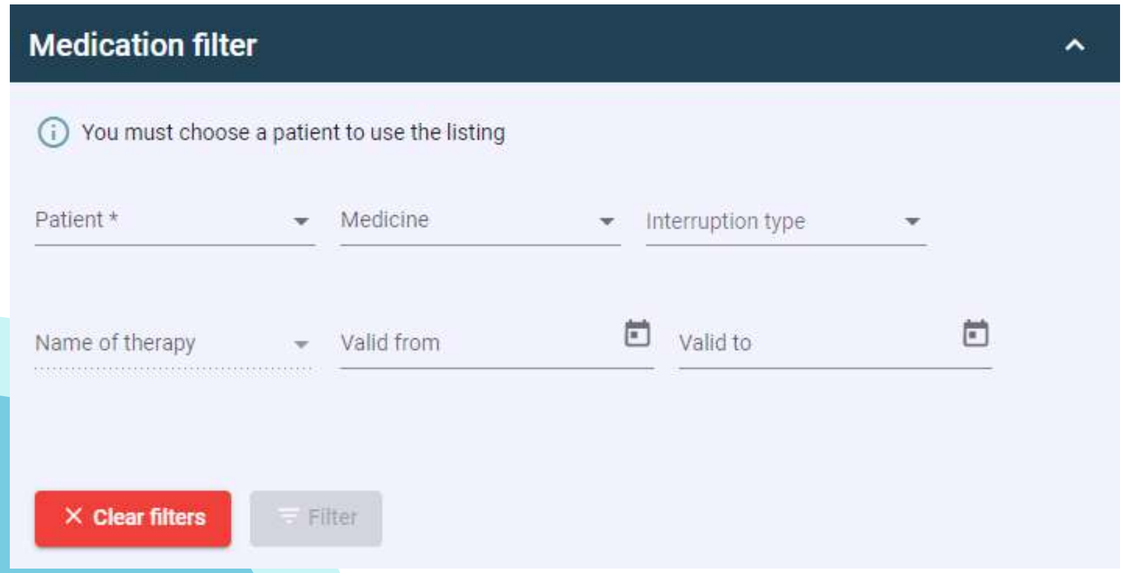
- Tracking of gene expression levels.
- Administration of examination appointments and history.
- CTA can be customized to the therapy tracking of other cancerous and chronic diseases.

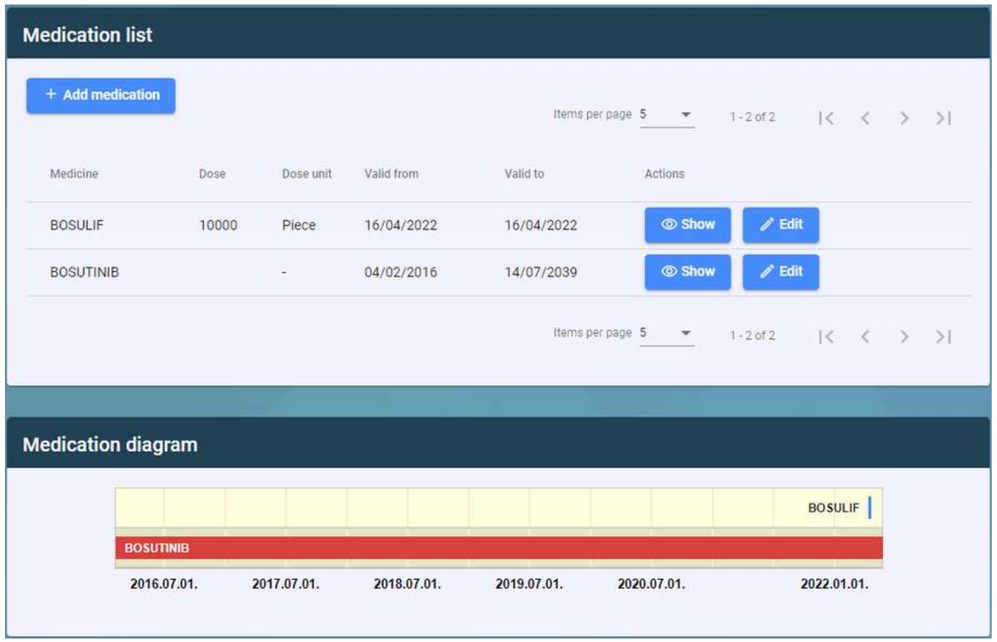


Cancer Treatment Assistant

Screening of medicine intake

Information sharing of medicine intake





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CTA - Cancer Treatment Assistant

01 Follow-up of diseases and diagnoses

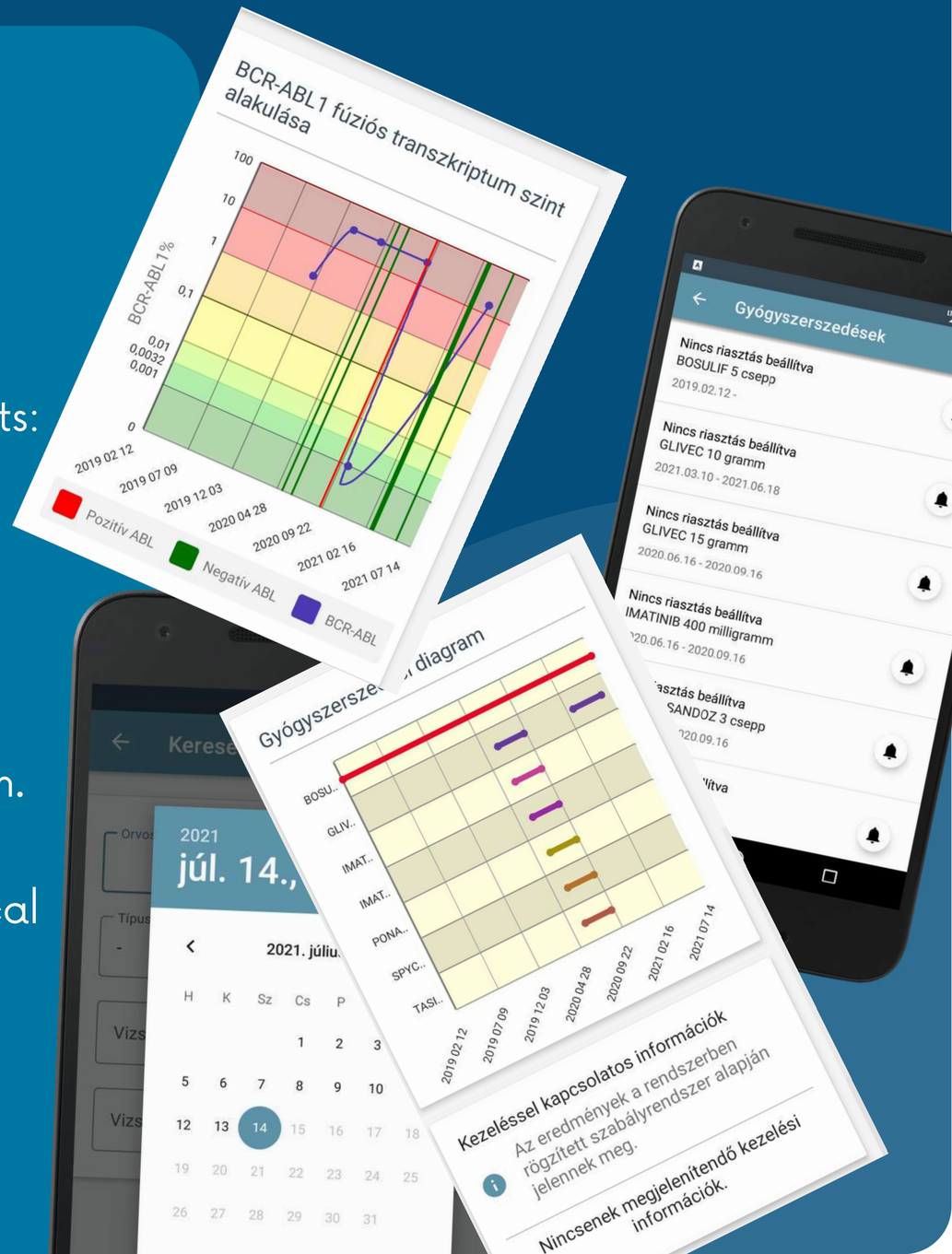
02 Tracking clinical therapies and medical treatments:
- Recording medical history
- Supporting therapy control

03 Monitoring and evaluating test results.

04 Medical history tracking and sharing with clinician.

05 Automatic evaluation of the effectiveness of clinical therapy based on pre-defined assessment rules.

06 Automatic selection of next clinical trial date.



GenomeAtlas

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Objectives

Visualization of the three-dimensional structure of cell type-specific genomes of a given species

01 Comprehensive, user-friendly bioinformatics analysis of raw sequencing data

02 Data cleaning and quality control

03 Sequence alignment to reference genome

04 Integration of the most efficient analysis algorithms (HiC-Pro, MiniMDS)

05 Interactive graphical display of a predicted 3D structure

06 Integration of other NGS data (ChIP-seq, RNA-seq) data

Official partner:
UD-GenoMed Kft.

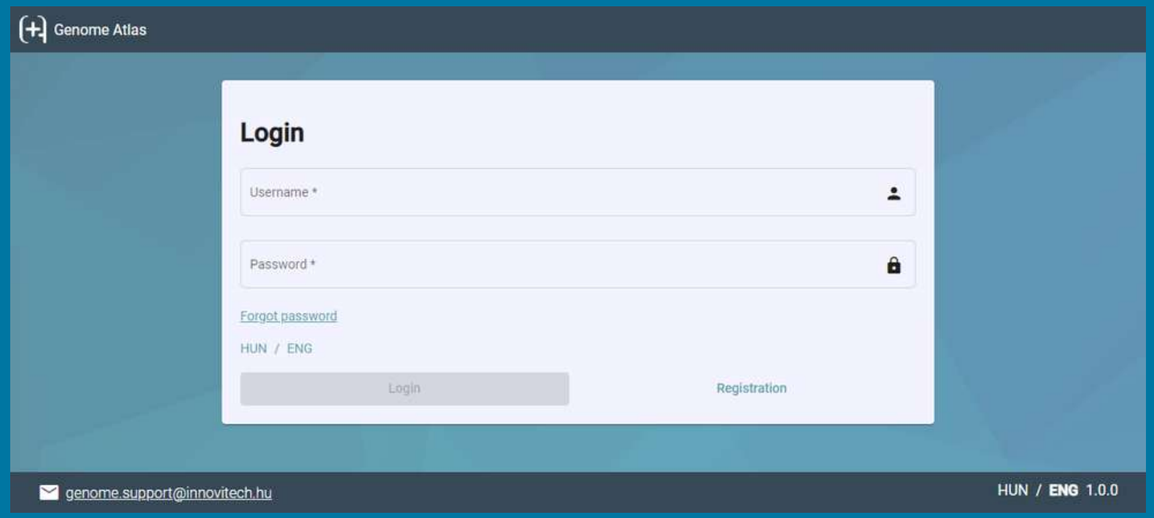
GenomeAtlas

NGS → FASTQ

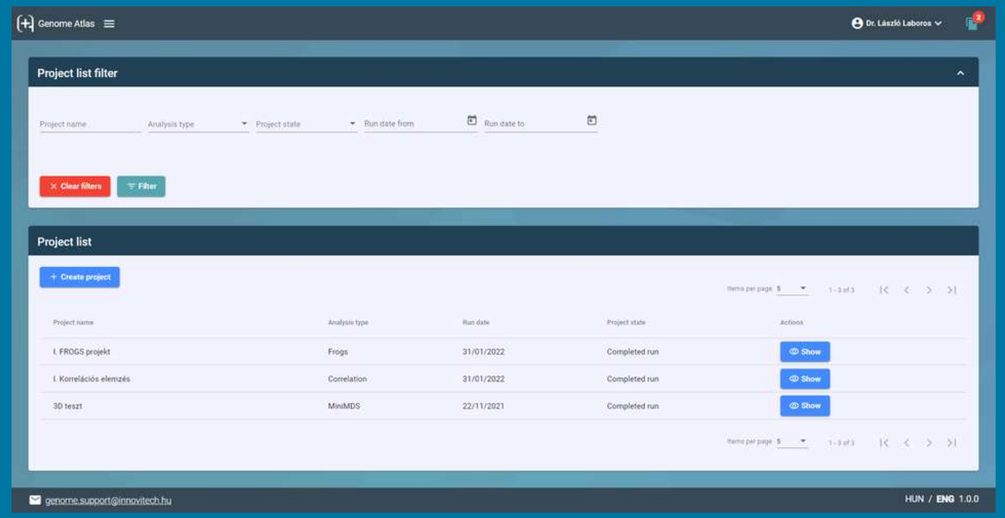
Normalized distance matrix

Coordinate file

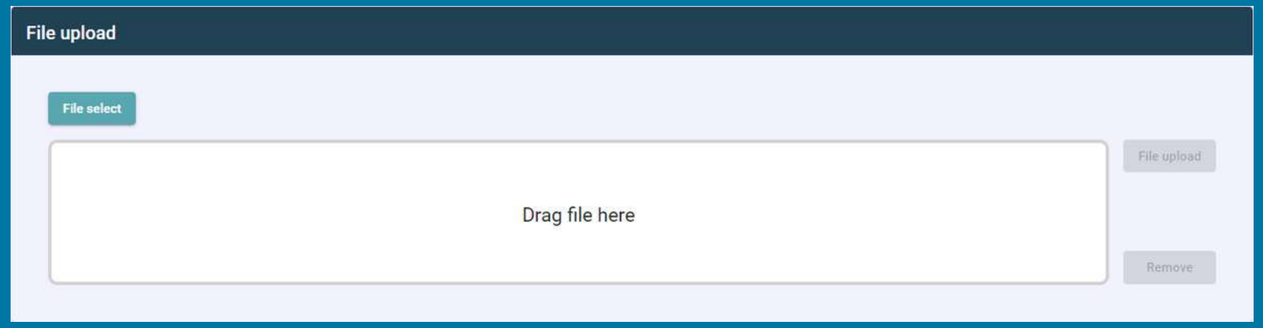
Login



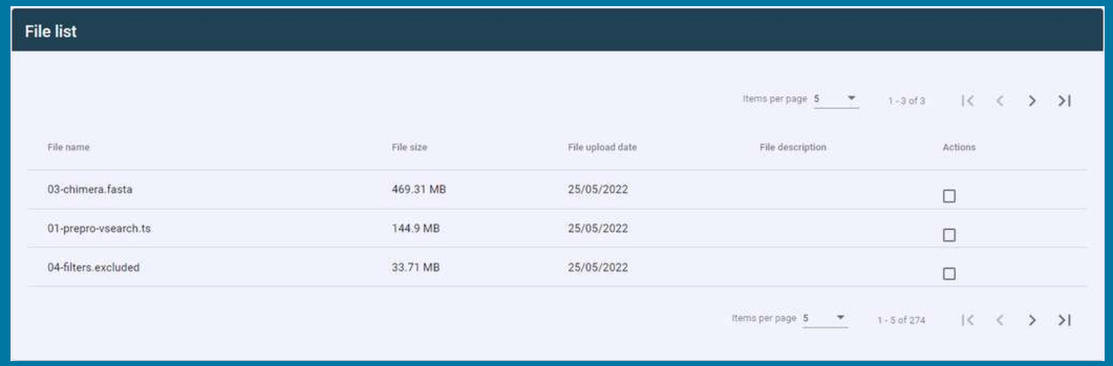
Project creation



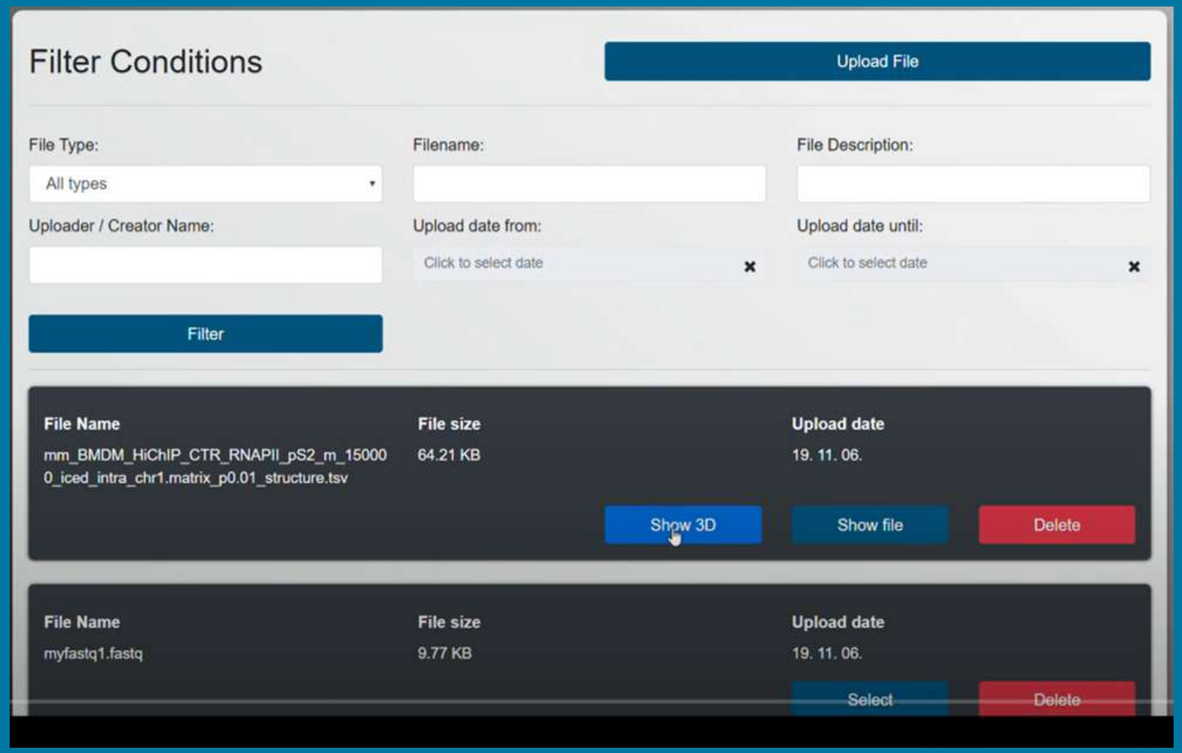
File upload

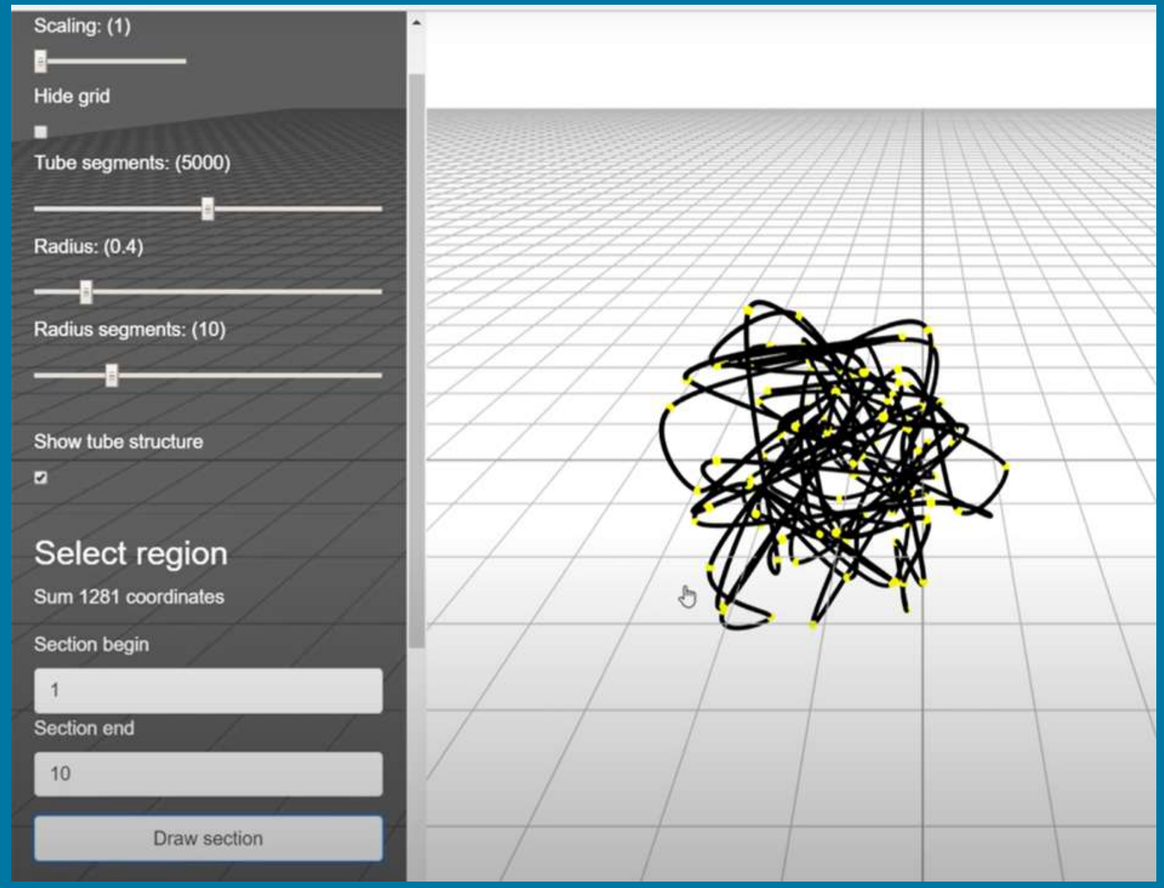


List of uploaded files



3D Illustration





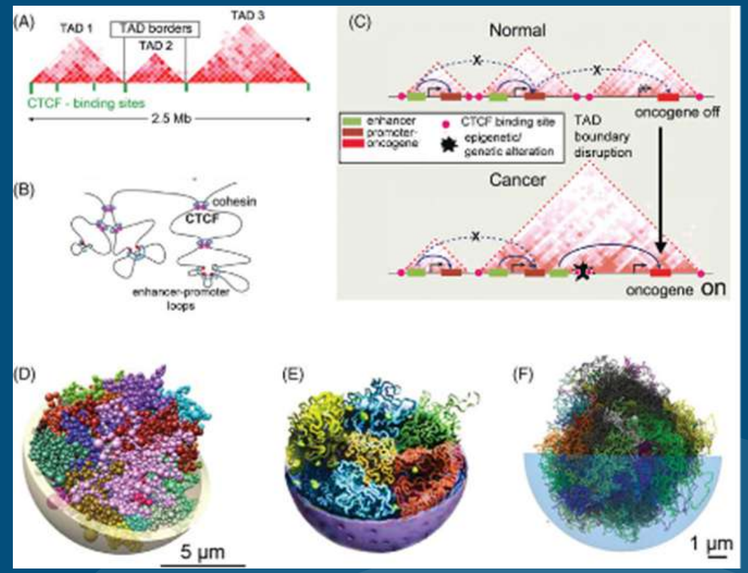
GenomeAtlas

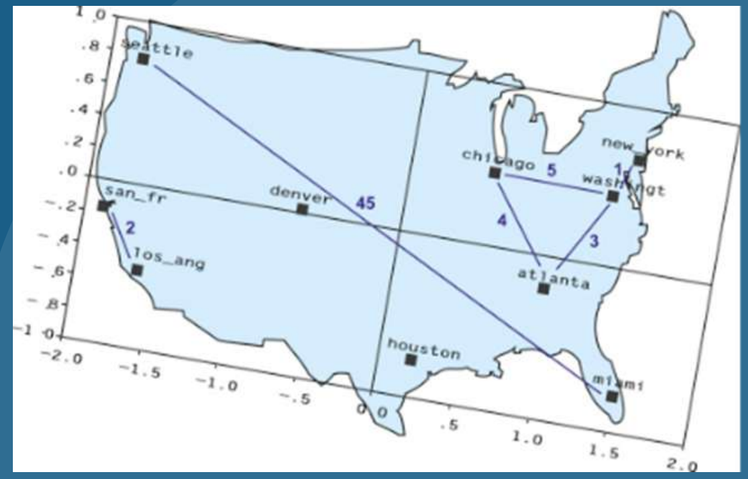
- Upload and organize raw data generated by a sequenator.

- Generating connection matrices based on a user-friendly session and raw sequencing files.

- Using the discovered artificial intelligence algorithm and connection matrix, prediction of the three-dimensional structure.

- View the generated 3D object and perform interactive transformations.





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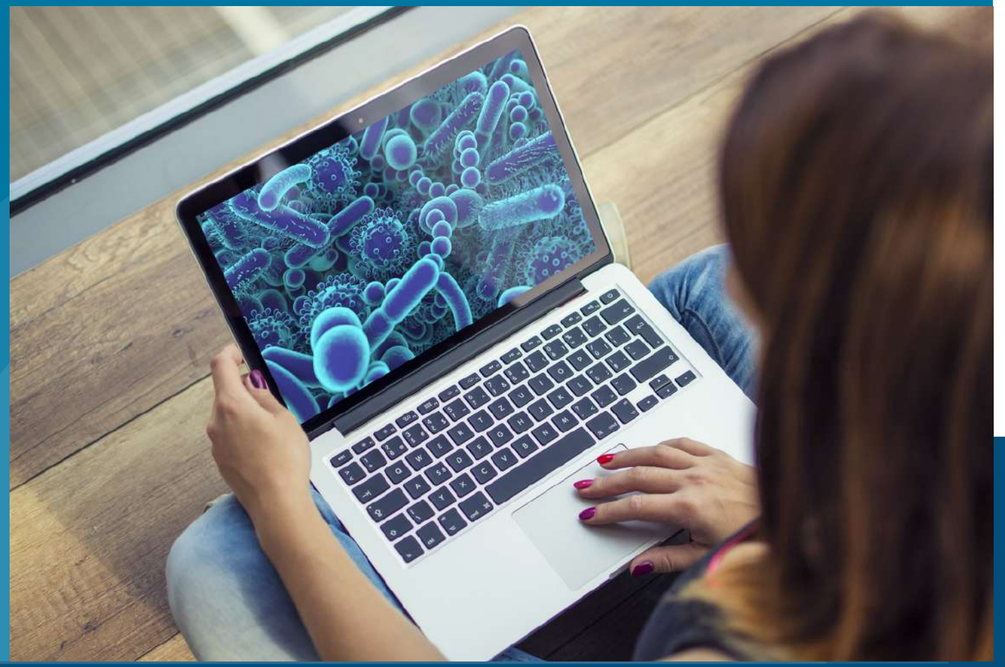
Metagenom



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Objectives

Metagenom provides an opportunity for automated analysis of the relationships between the composition of the intestinal flora and various mental illnesses.

Changes in the intestinal microbiome due to chemotherapy and antibiotic treatment

↓

Development of pathophysiological changes:

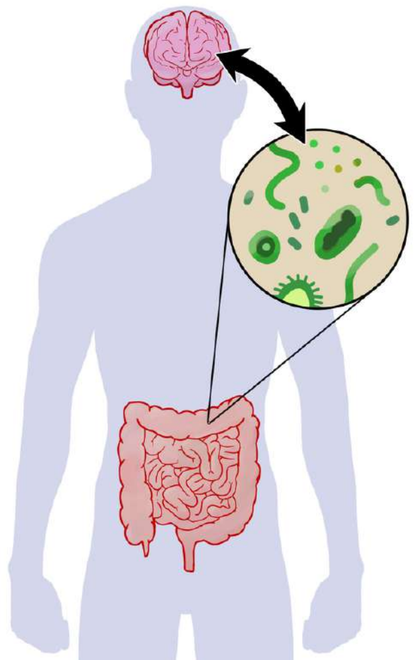
- Neurodegenerative, mental illness

(e.g. Parkinson's disease)

- Mental illnesses:

•Major depressive disorder (MDD)

•Attention Deficit Hyperactivity Disorder (ADHD)



Official partners:

UD-GenoMed Kft.

SOTE Psychiatric and Psychotherapy Clinic

Metagenom

Correlation study between mental illness and microbiome composition

↓

Effect of therapy on microbiome
(Sampling before and after treatment)

↓

Assessment can be applied to the analysis of other diseases

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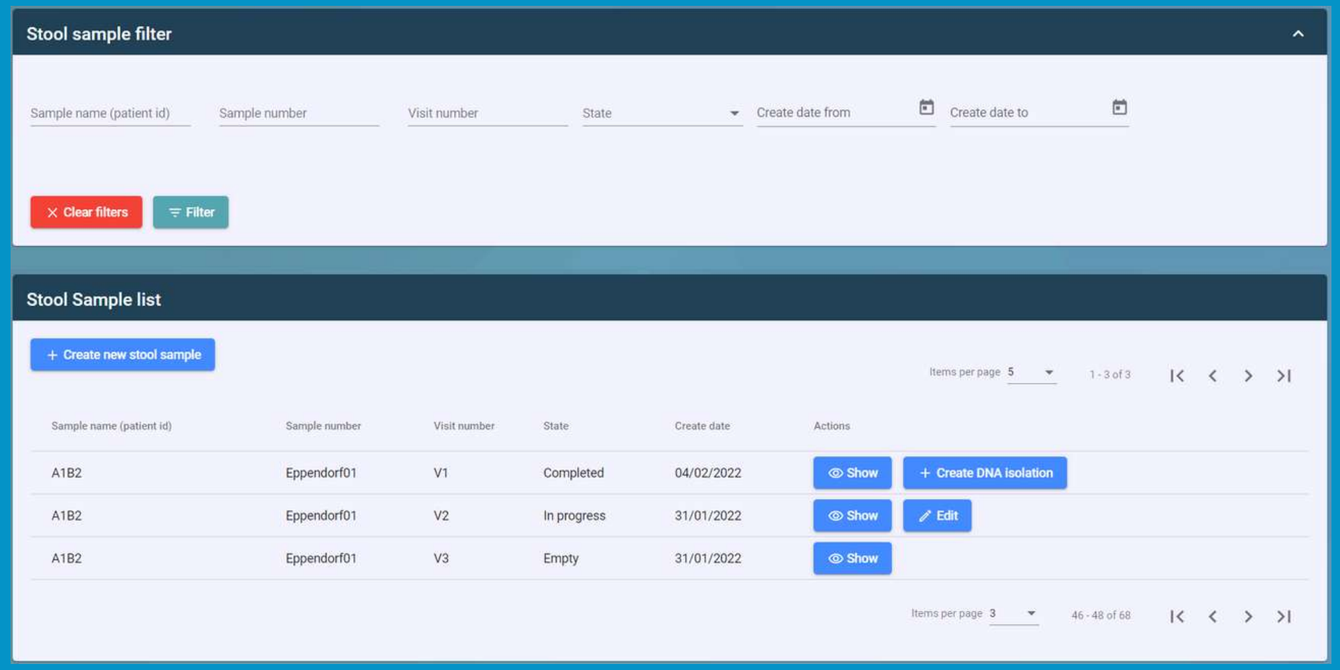
Lab workflow management module

Follow-up of the entire microbiome analysis process of the patient

Metagenom



01 Receipt of samples

02 Quality control

03 Upload documents and images for workflow states

04 Establishment of a biobank simultaneously with the recording of sample data

05 Flexible workflow declaration, which can be used to configure and parameterize the processing progress in a non-predefined way

Type of illness: psychiatric illness
Sample type: stool sample

Sample tracking can be extended to treat other diseases and types of samples.

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Genomic profile analysis module

NGS database analysis

Metagenom

Project handling

Reader files pre-processing:

Minimum aplicon size:	**Maximum aplicon size:**
44	550
Mismatch rate:	**Number of reads:**
0.15	33900
Paired-end sequencing lengths - from Forward primer lengths:	**Paired-end sequencing lengths - from Reverse primer lengths:**
251	251
Keep unmerged:	**Output dereplicated:**
Yes	Yes

Sequent clustering:

Number of Sequent char maximum difference:	**Sequent cluster noise filtering:**
3	Yes

Sequent filtering:

Minimum abundance [x]%:	**Minimum example presence:**
0.00005	3

Annotate:

Reference database:

SILVA

01 NGS → Bacterial 16S rRNS sequences

02 Sequence quality control
Data cleaning

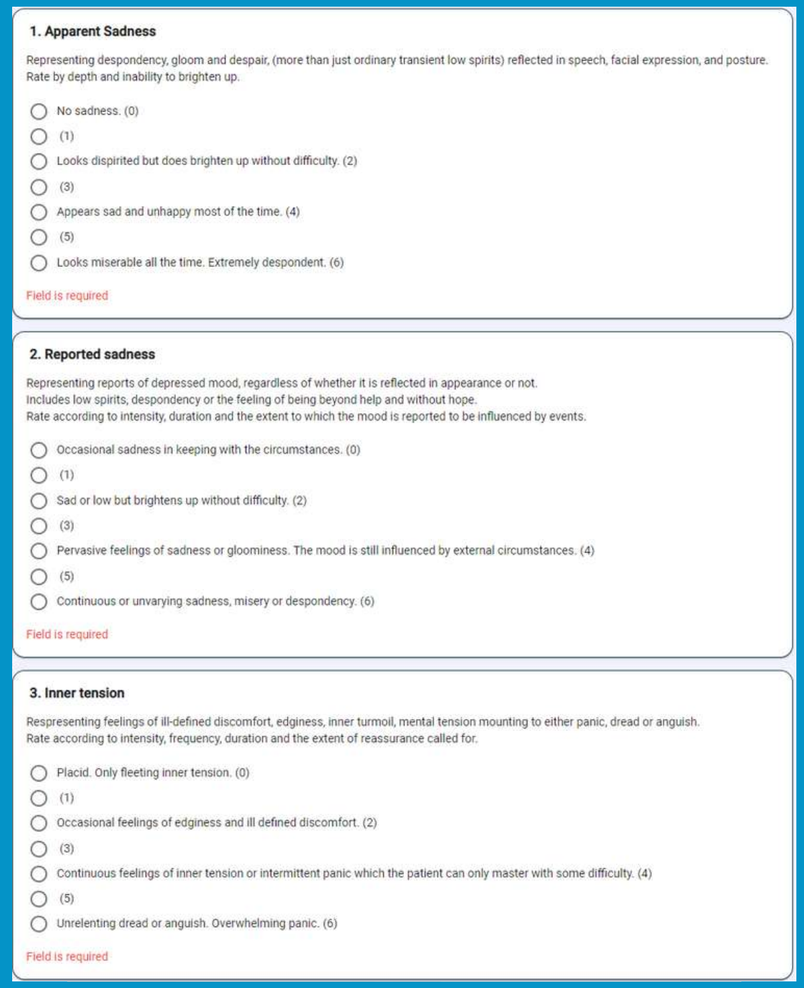
03 Inputing filtered sequences SILVA, GREENGENES to databases
Taxonomic annotation of taxonomic units

04 Determination of the patient's microbiome

Expert system module

Big Data analysis of the relationships between microbiome and clinical data

Metagenom



1. Apparent Sadness

Representing despondency, gloom and despair, (more than just ordinary transient low spirits) reflected in speech, facial expression, and posture.
Rate by depth and inability to brighten up.

- ◯ No sadness. (0)
- ◯ (1)
- ◯ Looks dispirited but does brighten up without difficulty. (2)
- ◯ (3)
- ◯ Appears sad and unhappy most of the time. (4)
- ◯ (5)
- ◯ Looks miserable all the time. Extremely despondent. (6)

Field is required

2. Reported sadness

Representing reports of depressed mood, regardless of whether it is reflected in appearance or not.
Includes low spirits, despondency or the feeling of being beyond help and without hope.
Rate according to intensity, duration and the extent to which the mood is reported to be influenced by events.

- ◯ Occasional sadness in keeping with the circumstances. (0)
- ◯ (1)
- ◯ Sad or low but brightens up without difficulty. (2)
- ◯ (3)
- ◯ Pervasive feelings of sadness or gloominess. The mood is still influenced by external circumstances. (4)
- ◯ (5)
- ◯ Continuous or unvarying sadness, misery or despondency. (6)

Field is required

3. Inner tension

Respresenting feelings of ill-defined discomfort, edginess, inner turmoil, mental tension mounting to either panic, dread or anguish.
Rate according to intensity, frequency, duration and the extent of reassurance called for.

- ◯ Placid. Only fleeting inner tension. (0)
- ◯ (1)
- ◯ Occasional feelings of edginess and ill defined discomfort. (2)
- ◯ (3)
- ◯ Continuous feelings of inner tension or intermittent panic which the patient can only master with some difficulty. (4)
- ◯ (5)
- ◯ Unrelenting dread or anguish. Overwhelming panic. (6)

Field is required

01 Determining the relationships between the scores of the questionnaire, the psychological state and the composition of the microbiome

02 Identification of microbiomic markers for a given disease type

03 **Increase treatment efficiency**

04 Supporting research on treatment protocols

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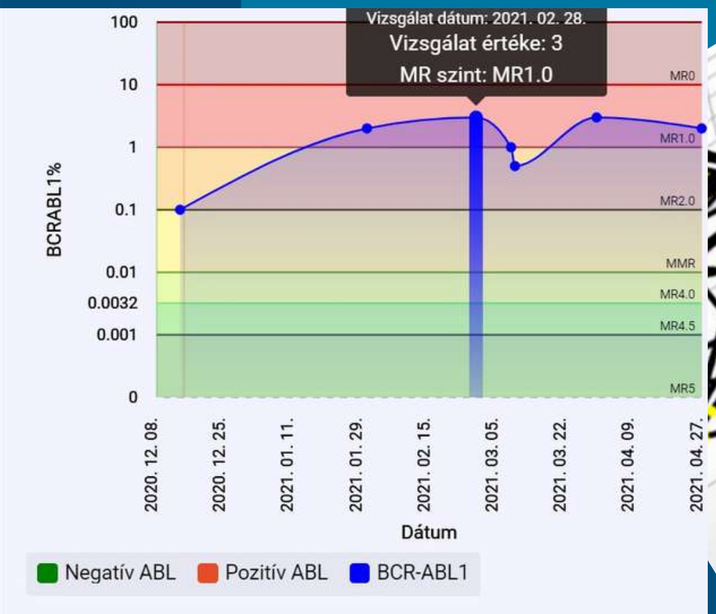
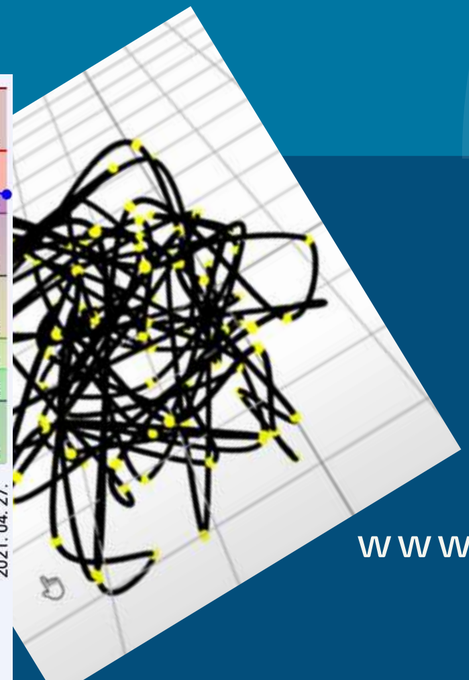
CTA - GenomeAtlas -Metagenom





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