

BIOBANKING FOR PERSONALIZED MEDICINE – MORE THAN JUST STOCK LOGISTICS.



CentraXX Bio - Even today, sample documentation is often just a snapshot that depicts the sample only at the time of collection. The CentraXX research portal, on the other hand, provides all relevant sample

data on a continuous basis and links them in a meaningful and clear manner. This makes it possible to identify new contexts and apply them in research.

CentraXX not only handles the structured storage and administration of all sample data but also establishes the longitudinal connection between these samples and all existing patient data that originate from various sources. A multidimensional image is thus created from the sum of all available data. The added feature of pseudonymized access in CentraXX enables the recording of information and concrete findings in accordance with comprehensive data and patient protection protocol.

Biobanking for personalized medicine does not merely begin with the actual laboratory activity but can be divided into five phases.

PHASE 1 Patient Admission

PHASE 2 Sample Collection and Initial Assessment

PHASE 3 Duplication and Processing

PHASE 4 Reporting

PHASE 5 Delivery



Would you like to find out more about the CentraXX BIO? Or are you already a CentraXX user and would like to integrate this module into your existing CentraXX architecture?

Then please contact KAIROS >info@kairos.us

NOW IS THE TIME.

> kairos.us

PHASE 1 Patient Admission

The first phase already begins at the time of patient admission, during which important tools like CentraXX's Consent Management come into play. This electronic declaration of consent is the legal prerequisite for the use of samples and data for successful research.

In CentraXX, a wide variety of consent forms can be recorded in a patient-oriented and structured manner. Digital signatures or digital pen solutions can facilitate this process. The signed consents are stored in the CentraXX Study Record as a digital

document and can be retrieved and viewed by authorized users at any time.

During patient admission, all relevant patient data (e.g. master data, diagnostic data, therapy data, study data) are imported directly into CentraXX from the patient management system (e.g. HIS). Alternatively, CentraXX also offers user-friendly masks for the manual entry of patient data for stand-alone operation.

Add patient

Patient data | Episodes

CentraXX Patient ID: [text field] Organization Units [text field]

Pat. ID [dropdown] [text field] [add icon]

[-] Patient consent [text area]

[+] General patient data

[+] Extended patient data

[+] Contact data

[+] Patient status

[+] Notes

Add consent

Consent kind: Detailed consent [dropdown]

complete

partial

<input type="checkbox"/>	Consent components	Type	Revocation
<input checked="" type="checkbox"/>	DNA-Sequencing	Sample	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Recontact	Patient	<input type="checkbox"/>
<input type="checkbox"/>	Sharing with international cooperation partners	Sample	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Use in all studies	Sample	<input type="checkbox"/>

Form: [text field] [Browse...] [trash icon]

Signed on: MM/DD/YYYY [calendar icon] Day [dropdown] [help icon]

Valid from: 05/21/2019 [calendar icon] Day [dropdown] [help icon]

Valid until: MM/DD/YYYY [calendar icon] Day [dropdown]

Notes: [text area]

[Apply] [Cancel]

PHASE 2 Study Collection and Initial Assessment

The extracted biomaterial must be stored and documented according to certain basic standards, such as SPREC. Here CentraXX helps with the corresponding, integrated catalogs. Since each organization within a laboratory works with its own Standard Operating Procedures (SOP), CentraXX uses a workflow engine to integrate the SOPs into its workflow. This enables the creation

of rule-based, customizable entry masks for defined processes. In CentraXX, the SOPs are not only represented as pure blueprints, but also as IT-guided workflows. These workflows are created transparently and can always be seen in the display and the resulting task lists.

Sample pooling - pooling

MPI: 12345678

BFC ERY SER

Primary container

not pooled samples

12345678_2

pooled samples

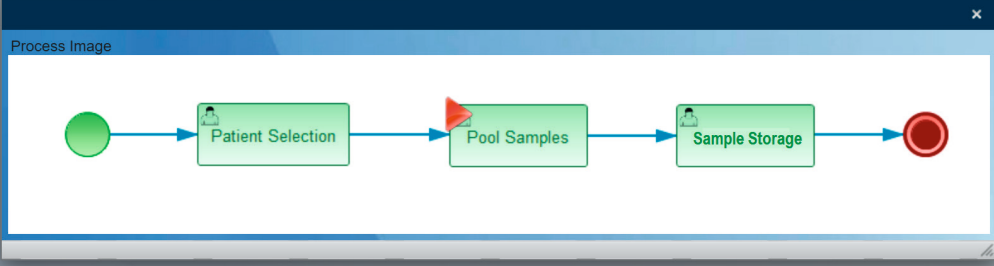
Start date

Time 00:00

sample type complete, there are no other primary tubes to be expected

Sample ID	Sample type	Sample container	Quantity
12345678_9	Buffy Coat	container for pooled samples	1.0 ml
22345658_9	Buffy Coat	container for pooled samples	1.0 ml
12365987_5	Buffy Coat	container for pooled samples	1.0 ml

Process Image



```

graph LR
  Start(( )) --> Patient Selection[Patient Selection]
  Patient Selection --> Pool Samples[Pool Samples]
  Pool Samples --> Sample Storage[Sample Storage]
  Sample Storage --> End(( ))
  
```

Start next task

Complete task Close window

Create sample

Sample template: Please select...

Use SPREC SPREC Code: AMN - CAT - J - X - J - I - C

CentraXX Sample ID:

Proben ID: 345125

Diagnosis: Please select...

Organization unit: Please select...

Histology No.:

Order No.: Labor_45128

Patient consent: BEAT KD Consent (open) (05/21/2019)

Sample type: Liquid Sample

Sample kind: Amniotic fluid (AMN)

Sample container: Cryotube 1 - 2 ml Liquid nitrogen (C)

Sample status: Please select...

Initial amount: 4 g

Remaining amount: 4 g

Concentration: Please select

Extraction date: 05/21/2019 14:16 Exact

Storage date: MM/DD/YYYY 00:00 Exact

Date of receipt: MM/DD/YYYY 00:00 Exact

SPREC

Primary container: Serum tube without clot activator (CAT)

Pre-Centrifugation delay: 2°C to 10°C 1 Day MM/DD/YYYY 00:00 Exact

Post-Centrifugation delay: 2°C to 10°C >24h (I) MM/DD/YYYY 00:00 Exact

1. Centrifugation: 30min, 2000g, RT MM/DD/YYYY 00:00 Exact

2. Centrifugation: 2°C to 10°C 10-15 min >10,000 g with braking MM/DD/YYYY 00:00 Exact

2°C to 10°C 10-15 min >10,000 g with braking

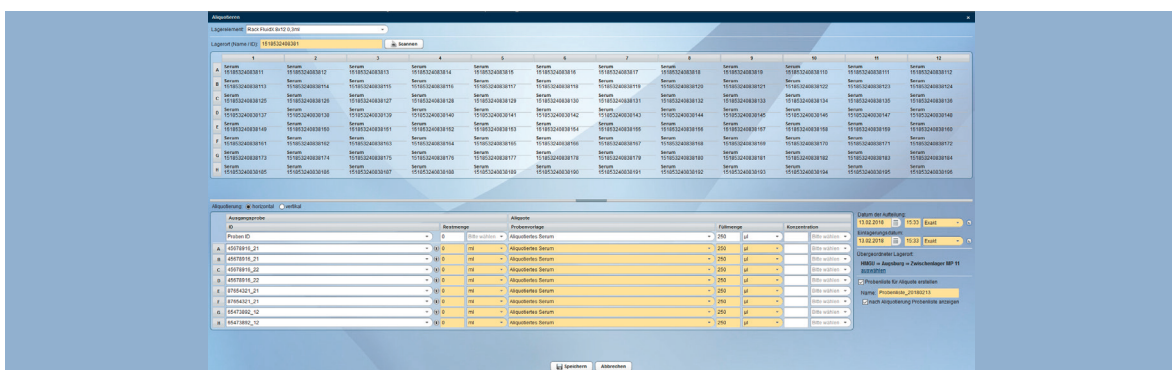
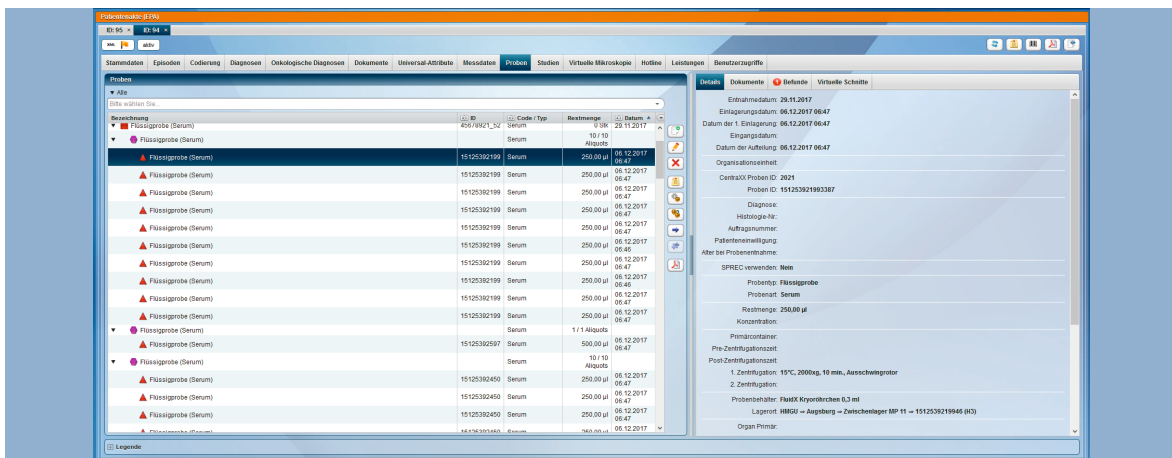
Sampling and localization

Extended sample data

PHASE 3 Duplication and Processing

Today, the operation of a biobank no longer involves the documentation of individual samples but entire sample sets. To ensure high throughput operation, CentraXX offers interfaces to barcode scanners and aliquot machines. The entire life cycle of the sample is recorded, documented and

clearly visualized in the system. All results, which are obtained through different measuring procedures in different systems, are automatically returned to the Study Record of the patient/study member via Measurement Profiles.



Measurement values			
Clinical Chemistry (Enzymes, Electrolytes, Trece elements) (08/24/2018 14:26)			
Form view			
Measurement parameter	Value	Unit	Reference range
Glucose (Blood sugar)	82.00	mg/dL	74.00 - 106.00
Creatinine-kinase	164.00	units/L	<= 171.00
HDL-Cholesterol ("good Chol")	57.00	mg/dL	>= 40.00
LDL-Cholesterol ("bad Chol")	145.23	mg/dL	<= 155.00
Triglycerides (neutral fats)	148.00	mg/dL	<= 150.00
Lipoprotein(a)	23.00	mg/dL	<= 30.00
Aspartat-Aminotransferase	24.00	units/L	0.00 - 25.00
Alanin-Aminotransferase	21.00	units/L	0.00 - 25.00
gamma-Glutamyltransferase	15.00	units/L	12.00 - 55.00
Bilirubin	1.03	mg/dL	0.30 - 1.00
Creatinine	1.41	mg/dL	<= 1.50
Alkaline Phosphatase	36.00	units/L	30.00 - 120.00
Acid phosphatase	12.00	units/L	3.00 - 14.00
Amylase	102.00	units/L	<= 110.00
Lipase	18.00	units/L	13.00 - 60.00
Lactate-Dehydrogenase	124.75	units/L	135.00 - 225.00
Uric acid	4.00	mg/dL	3.00 - 7.00
Urea	12.00	mg/dL	10.00 - 20.00
Total protein	5.90	g/dL	5.50 - 8.00
Transferrin	247.00	mg/dL	200.00 - 400.00
Iron (Ferrum)	67.00	µg/dL	65.00 - 180.00
Chloride	107.00	mmol/L	98.00 - 106.00
Calcium	2.63	mmol/L	2.00 - 2.80
Potassium	3.59	mmol/L	3.50 - 5.00
Magnesium	0.93	mmol/L	0.70 - 1.00
Sodium	139.00	mmol/L	136.00 - 145.00
Phosphate	0.89	mmol/L	0.81 - 1.60

PHASE 4 **Reporting**

Beyond the mere collection of data, CentraXX enables all essential ad-hoc queries using the report engine and independently maintains inventory lists. For example, it is always possible to display the entire sample inventory of the biobank, to visualize statistical evaluations of all recorded data,

or to export them to the most common statistics programs. In addition to the most common export options, finished CentraXX reports can be sent automatically and at defined intervals to various recipients.

PHASE 5 **Delivery**

In practice, one of the most important functions, but also the greatest challenge of a biobank, is the controlled release of biosamples and their data. CentraXX allows the operators of the biobank to manage and hand over the entire sample stock in a controlled and secure manner. After successful registration in this system, the researcher can then create a list of suitable samples in the system independently and at any time and apply for their release. CentraXX Bio provides important information at all times as to whether and where material from a sample is available. In CentraXX Bio, it does not matter whether the storage structure is centralized or decentralized. The rights and roles system ensures that the

user only has access to samples that may be handed over to them. The operator of the biobank retains the veto right to hand over each individual sample at any time; the researcher is always informed of the current status of their inquiry by using a ticket system. The researcher can decide whether to return data to CentraXX, such as data for sample processing or findings. The decision to return this data remains the researcher's own prerogative within the framework of the disclosure of their research and of the consent of the patient/study member.

Abgabe erstellen

Abgabedatum: 13.02.2018 15:40 Exakt Einwilligung Tumorboard liegt vor

Art der Abgabe: Versand | Abgabegrund: Anfrage | Empfänger: Max-Deibrück-Centrum | Abgabemenge: 250.00 µl Komplet abgeben | Probenbehälter: FluidIX Kryoröhrchen 0,3 ml | Bemerkungen: Proben werden für Analyszwecke an Kooperationspartner verschickt.

Restmenge: 0,00 µl Komplet abgeben

Abgabe ID	Art der Abgabe	Abgabegrund	Empfänger	Abgabemenge	Probenbehälter	Bemerkungen
151253921993387	Versand	Anfrage	Max-Deibrück-Centrum	250.00 µl	FluidIX Kryoröhrchen 0,3 ml	Proben werden für Analyszwecke an Kooperationspartner verschickt.
151253921993316	Versand	Anfrage	Max-Deibrück-Centrum	250.00 µl	FluidIX Kryoröhrchen 0,3 ml	Proben werden für Analyszwecke an Kooperationspartner verschickt.
151253921993327	Versand	Anfrage	Max-Deibrück-Centrum	250.00 µl	FluidIX Kryoröhrchen 0,3 ml	Proben werden für Analyszwecke an Kooperationspartner verschickt.

Speichern Abbrechen

Juvert_Ann - 010221983 - CentraxX ID: 343410

Master data | Episodes | Coding | Diagnoses | Oncologic diagnoses | Documents | Universal attributes | Measurements | Samples | Studies | Virtual microscopy | Hotline | Benefits | Extended | User accesses

Samples

Description	ID	Code / Type	Remaining Amount	Date	SOP deviation
Liquid Sample (Blood (whole) (BLD))	31651	Blood (whole) (BLD)	0 ml	04/20/2018 10:45	No
Liquid Sample (Buffy Coat)	31650	Buffy Coat	1/5 Aliquots	04/20/2018 16:45	No
Liquid Sample (Buffy Coat)	31650	Buffy Coat	0 µl	04/20/2018 16:45	No
Abstraction amount: 250.00 µl	31650			04/21/2018 15:20	
Liquid Sample (Buffy Coat)	31661	Buffy Coat	0 µl	04/20/2018 16:45	No
Abstraction amount: 250.00 µl	31661	Buffy Coat		05/21/2019 15:20	
Liquid Sample (Buffy Coat)	31662	Buffy Coat	0 µl	04/20/2018 16:45	No
Abstraction amount: 250.00 µl	31662	Buffy Coat		05/21/2019 15:20	
Liquid Sample (Buffy Coat)	31663	Buffy Coat	0 µl	04/20/2018 16:45	No
Abstraction amount: 250.00 µl	31663	Buffy Coat		04/20/2018 16:45	No
Liquid Sample (Blood (whole) (BLD))	31616	Blood (whole) (BLD)	0 ml	02/05/2018 18:03	Yes
Liquid Sample (Blood (whole) (BLD))	62748694267	Blood (whole) (BLD)	2.00 ml	10/16/2017 12:59	No
Liquid Sample (Stool (STL))	30841	Stool (STL)	1.00 pc	09/05/2017 06:50	No
Liquid Sample (Stool (STL))	30819	Stool (STL)	10.00 g	09/05/2017 15:54	No
Liquid Sample (Blood (whole) (BLD))	28422	Blood (whole) (BLD)	7.00 ml	01/12/2017 09:50	Yes
Liquid Sample (Blood (whole) (BLD))	1112011-5	Blood (whole) (BLD)	0 pc	07/23/2012 09:30	No
Malignant neoplasms of rectum	C20			02/15/2011	

Details | Documents | Findings | Virtual slides

Abstraction date: 05/21/2019 15:20

Abstraction ID: 31660

Abstraction amount: 250.00 µl

Sample container: Cryotube

Abstraction kind: Disposal

Abstraction reason: Autodeclaring

Receiver:

Project:

Complies with Tumorboard regulation: No

Delivered by: admin (Administrator)

Note: Destroying sample because contamination was found

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