

# EUROPE BIOBANK WEEK

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VIENNA - AUSTRIA

## Monique Oomen: "Accreditation Protects Sample Quality in Continuous Work Environment Propelled Improvements"



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# Accreditation Protects Sample Quality in Continuous Work Environment Propelled Improvements

Monique Oomen

ESBB annual Conference Vienna

15 September 2016

# Erasmus MC Tissue Bank

Hospital Intergrated Biorepository, integral part of the Clinical Pathology Department

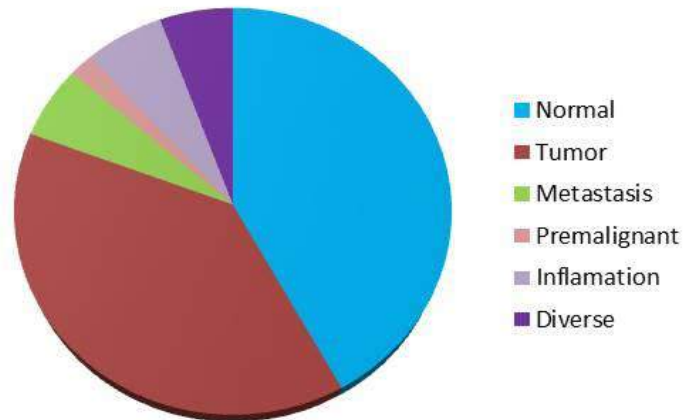
- Frozen tissue (left-over / residual)
  - about 80 000 samples
    - Surgical specimen
    - Biopsies (routine)
    - Post Mortem
- FFPE archival material
  - 2 to 3 million



# Erasmus MC Tissue Bank

## Collection Frozen Tissue

	Totaal
Normal	32080
Tumor	29594
Metastasis	4402
Premalignant	1411
Inflamation	4651
Diverse	4260



Total	76398		
PID	23254	3,3	Sample / patient
Panr	30383	2,5	Sample / PANr



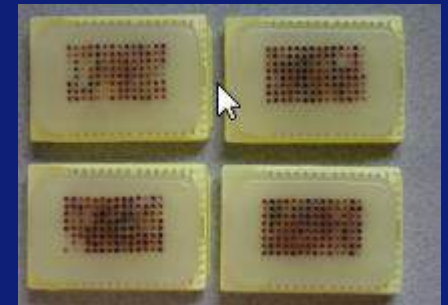
# ISO 15189:2012



- Erasmus MC Clinical Pathology accredited (first in the Netherlands)
- Erasmus MC Tissue Bank completely integrated
  - SOP's and Work instructions
  - QA and QC program
  - Documentation system
  - Validation of tests and new methodes
  - Personnel responsibilities, education and competence
  - Audits (internal/external)

# Erasmus MC Tissue Bank Growth

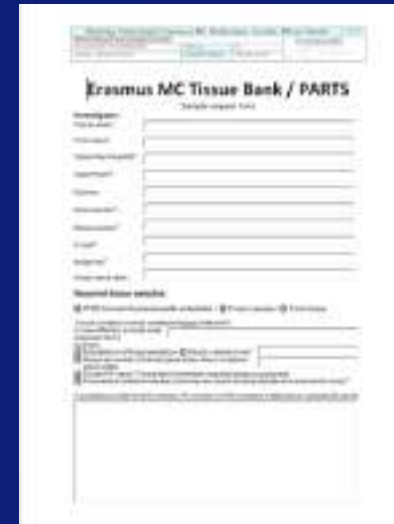
- TRSU (2011)  
A unique infrastructure and expertise for tissue based research
- PARTS (2015)  
Pathology Research and Trial service  
(tissue technique requests from departments)
- Serious change for the biobank  
To get more hands collecting, the tissue bank evolved from “hands on” to a more quality controlling and monitoring unit



# Adjustments biobank procedure

- Tissue Request Form

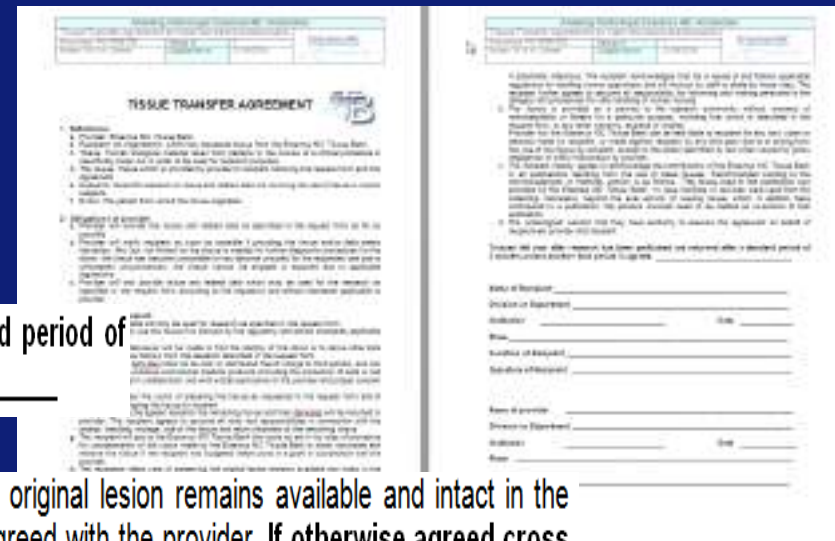
- FFPE, blanc/ stained glass slides
- Frozen, tissue sections or punches (mm<sup>3</sup>)
- Fresh tissue
- Prospective studies



The image shows a 'Tissue Request Form' from Erasmus MC Tissue Bank / PARTS. It includes fields for 'Requester', 'Institution', 'Department', 'City', 'Country', 'Phone', 'Fax', 'E-mail', and 'Request date'. There is also a section for 'Request details' with a table for 'Request ID', 'Request description', 'Request quantity', and 'Request date'. The form is titled 'Erasmus MC Tissue Bank / PARTS' and 'Tissue request form'.

- Tissue Transfer Agreement

- Preserving original lesion
- Return tissue after 3 months



The image shows a 'Tissue Transfer Agreement' form. It is titled 'TISSUE TRANSFER AGREEMENT' and includes a section for 'Requester' with fields for 'Name of Requester', 'Director of Department', 'Institution', 'City', 'Country', 'Phone', 'Fax', 'E-mail', and 'Request date'. There is also a section for 'Request details' with a table for 'Request ID', 'Request description', 'Request quantity', and 'Request date'. The form is titled 'Erasmus MC Tissue Bank / PARTS' and 'Tissue transfer agreement'.

Tissues left over after research has been performed are returned after a standard period of 3 months unless another time period is agreed: \_\_\_\_\_

h. The recipients takes care of preserving the original lesion remains available and intact in the remainder of the sample unless otherwise agreed with the provider. If otherwise agreed cross out this obligation h. before signing this agreement.

# Adjustments biobank procedure

Transfer standard freezing procedure to routine pathology process

- Symplify procedure for routine technicians
- Design lean worflow,  
Freeze in LN<sub>2</sub> pre-cooled isopentane bath → CliniRF





# Adjustments biobank procedure

- Digital form for freezing tissue
  - Data input revised with checkpoint before import in Ocimum Biotracker
- Sample content Quality Control frozen tissue
  - Implemented in diagnostic process
  - Pathologist supplying the left-over tissue also reviews the sample (synchronized with the routine diagnostics of the same case)



# Validation of all adapted processes

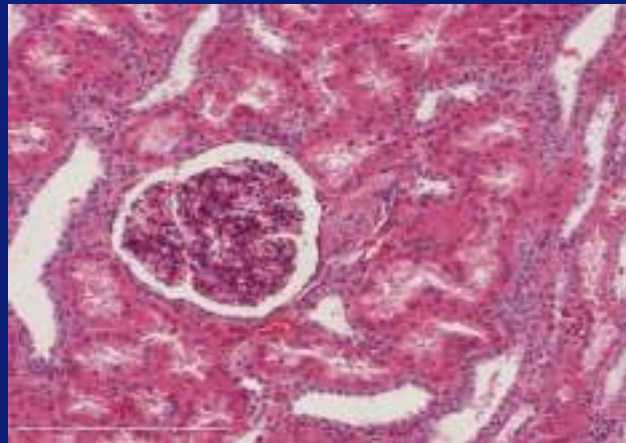
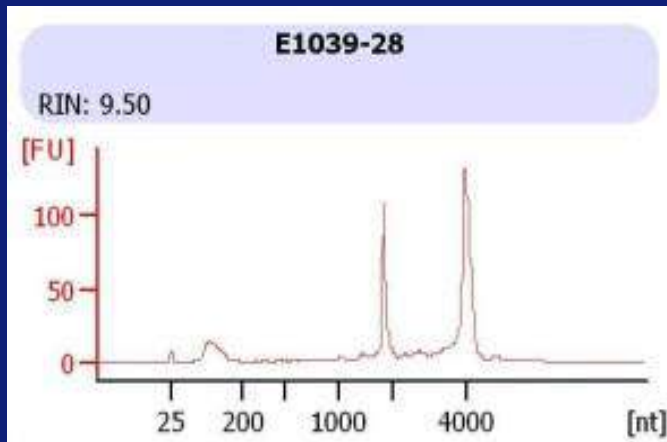
- According to accreditation rules: validation on intended use before final implementation
- To be absolutely sure the new process works to expectation and does not disturb sample/data quality

# Clini RF

## Validation sample quality:

- Comparison old process with new process in intended use
- 200 samples from different Tissue Types and Conditions, Pre-cooled isopentane of about -100 to -150°C to constant -80°C
- Determine RNA quality (RIN value) and tissue morphology

## RNA quality (RIN value) and morphology - no difference



# Digital Form

## Validation sample registration database

- Written paper Data input → Digital Forms
- N=200. Check import all data in to database

All samples imported correctly in batch in the Biotracker database

**Erasmus MC Weefselbank.**  
Data Formulier CO

Instelling: DDHK Datum: 4-6-2004  
Patiënt Nr.: 0737151 Patient Naam: De Krey  
PA nummer: H04-12252

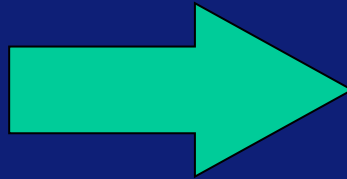
Oorspronkelijk weefsel:

<input type="checkbox"/> Borst/Mamma	<input type="checkbox"/> Maag
<input type="checkbox"/> Blaas	<input type="checkbox"/> Nier
<input type="checkbox"/> Cervix/Uterus	<input type="checkbox"/> Ovarium
<input type="checkbox"/> Darm	<input type="checkbox"/> Pankreas
<input type="checkbox"/> Endocrien	<input type="checkbox"/> Prostaat
<input type="checkbox"/> Hersenen	<input type="checkbox"/> Rectum
<input type="checkbox"/> Huid	<input type="checkbox"/> Spier
<input type="checkbox"/> KNO/Amandelen/Larynx	<input type="checkbox"/> Testis/Vlam cell
<input type="checkbox"/> Lever	<input type="checkbox"/> Slokdarm
<input type="checkbox"/> Long/Pleura	<input type="checkbox"/> Weke delen
<input type="checkbox"/> Lymfeklier	<input type="checkbox"/> Zenuw weefsel
<input type="checkbox"/> Anders:	

Verzamelde weefselstukjes

Weefsel status:	Experimenteel nummer /		Corresponderende Paraffine Letter
	Nr.	Sample	
Tumor	E345-36	A	
	E345-37	B	
<input type="checkbox"/> Voorstadium			
<input type="checkbox"/> Metastase			
<input type="checkbox"/> Anders:			
Normaal	E345-38	C	

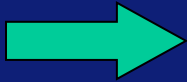
Bijzonderheden:



Erasmus MC  
Erasmus

# Sample Content Quality Control

Validation comparing sample content with actual diagnosis on the basis of morphology

- Review QC with pathologist  Implement into the diagnostic process
- Pathologists review n=200 synchronized with the routine diagnostics of the same case

**Quality Control sample content by the pathologist at the same time as the diagnostic sample – no difference**

# Conclusion

Accreditation protects and guarantees the existing high sample quality during continuous improvement of the Erasmus MC Tissue Bank

# Acknowledgement:

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Monique Oomen

Peter Riegman

Pathology PARTS