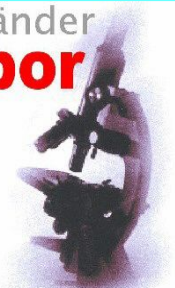




Current Issues Surrounding TSE Testing (Automats)

Symposium, Edinburgh, 2001



Automation of BSE Testing:

Performance of Bio-Rad's BSE Testing Process Using Robotics

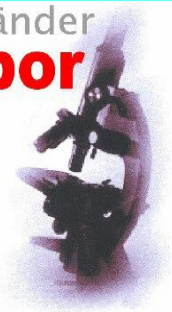
Dreiländer Labor GmbH

Analytik & Hygiene Institute



DLL GmbH Analytik & Hygiene Institute

Dreiländer
Labor
GmbH



Headquarter:

Dr. Ernst-Derra-Straße 4

94036 Passau/Germany

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Fax.: + 49-851-7568131



Dr. habil. Anna Salek

DLL GmbH Analytik & Hygiene Institute

Dreiländer
Labor
GmbH



Headquarter:

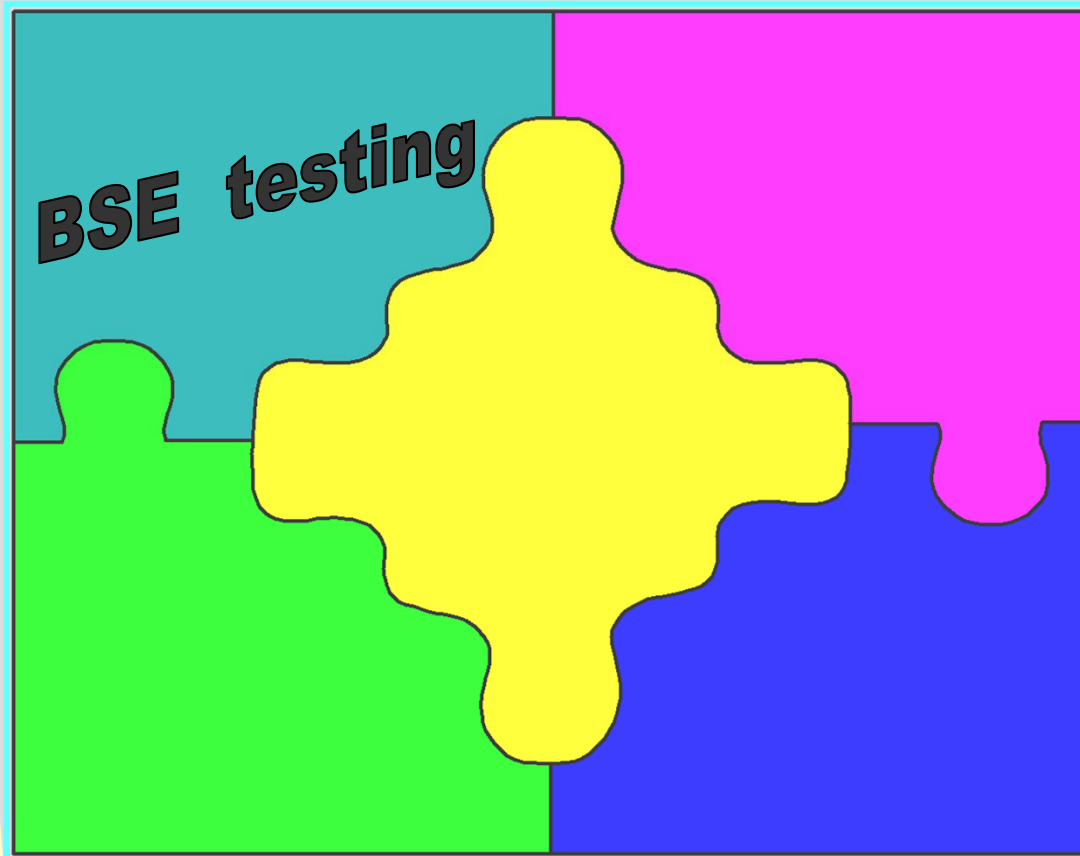
Dr. Ernst-Derra-Straße 4

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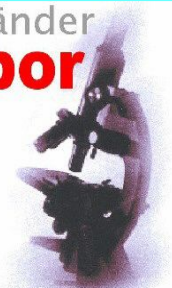
BSE testing



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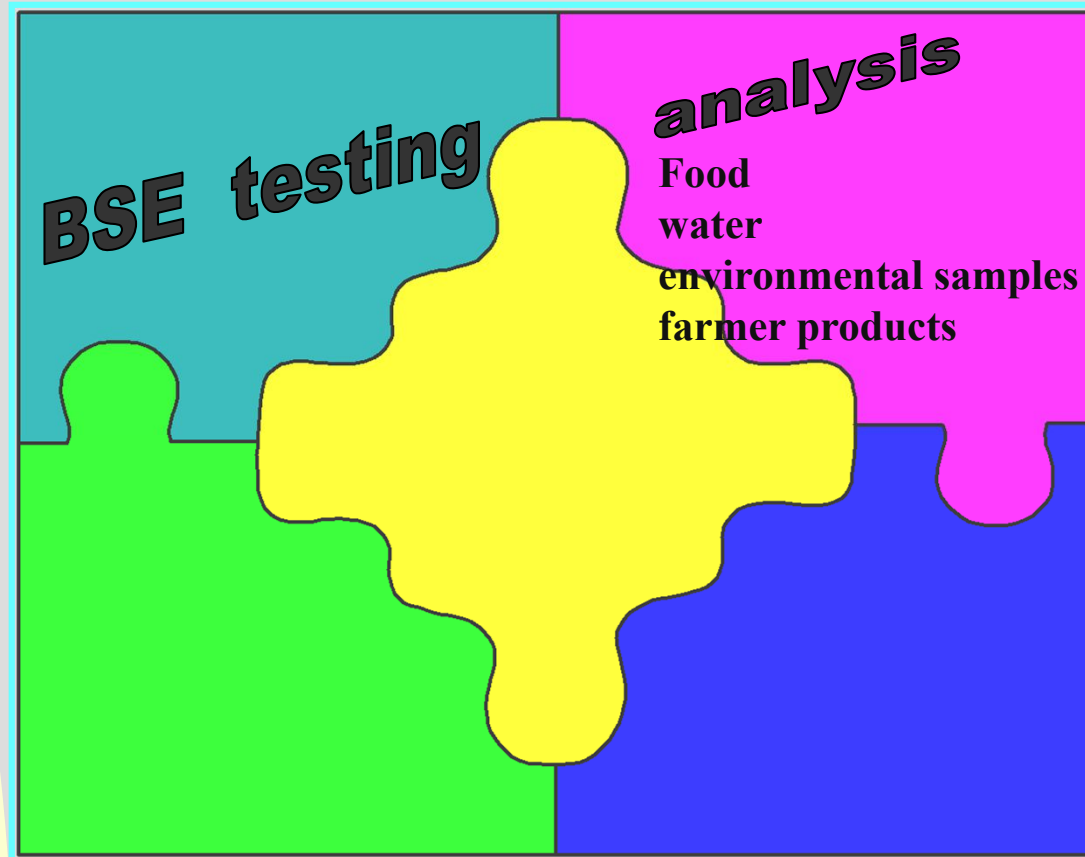
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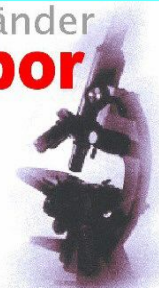
Dr. Ernst-Derra-Straße 4
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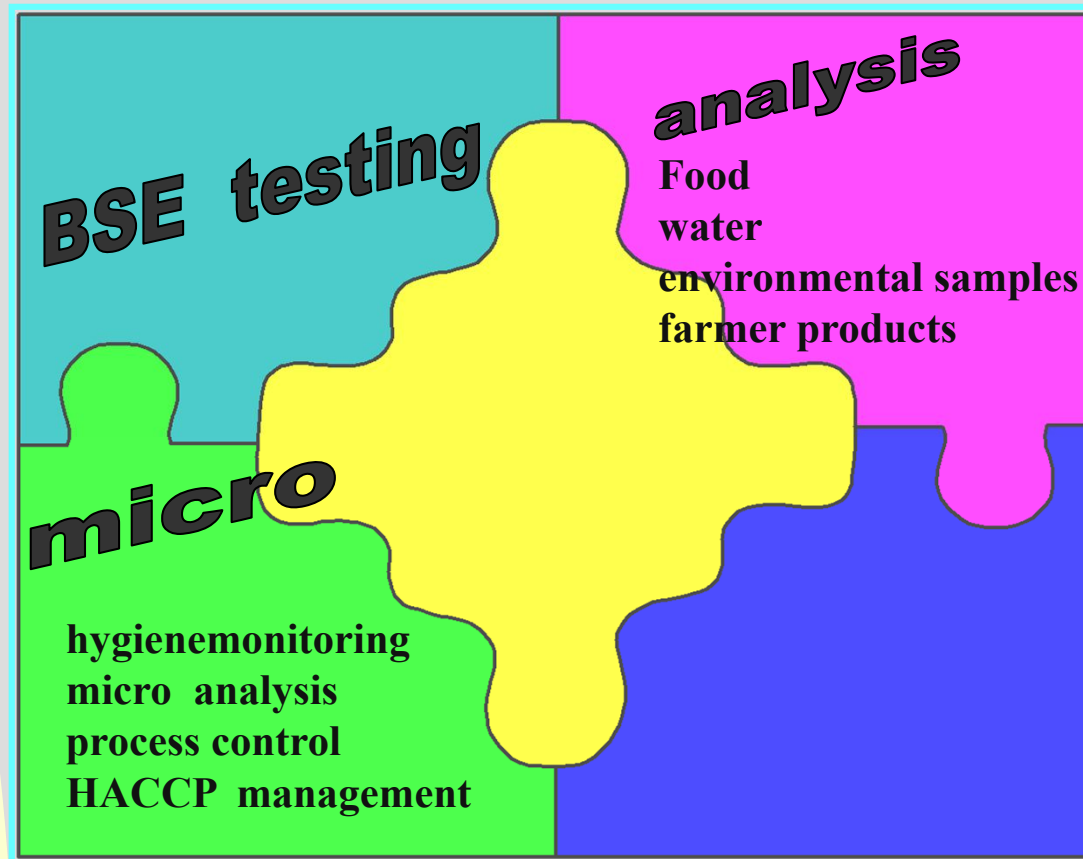
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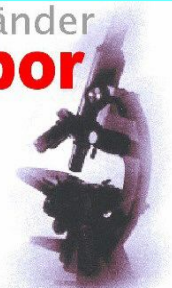
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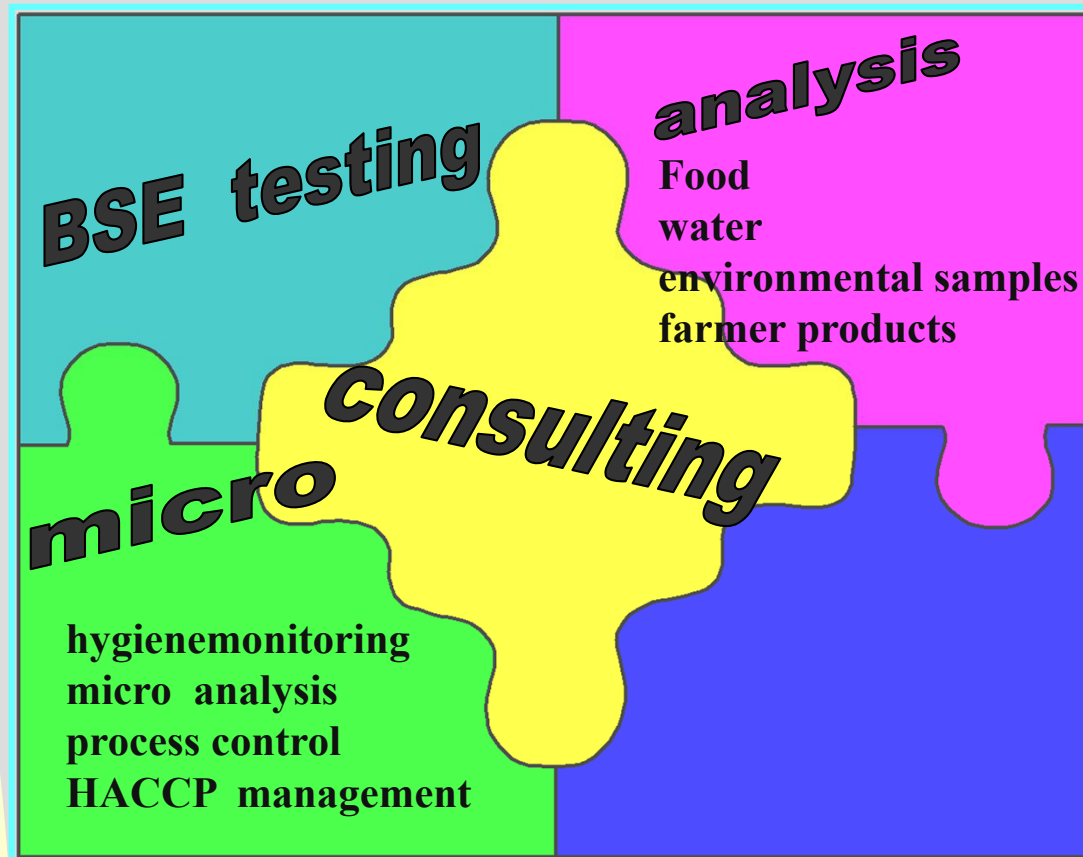
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Automated Test System: Lissy

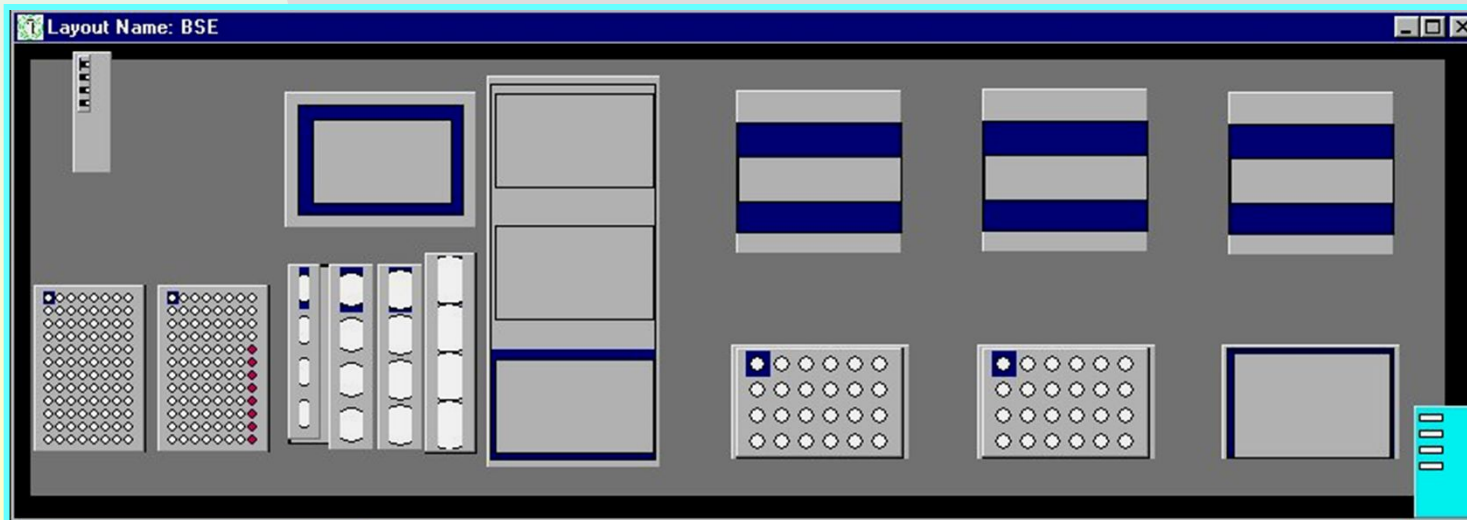
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General View



Screen Shot



Automated Test System

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24 Tubes in a Transport Frame



ZINSSER
ANALYTIC

ZINSSER ANALYTIC
GMBH,

Frankfurt/Main

www.zinsser-analytic.com



Automated Test System

Lissy 1

Proteinase Pipetting
Inkubation 37°C
Reagent B Pipetting

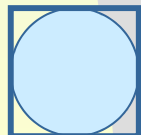
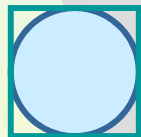
Lissy 2

C1 Pipetting
Inkubation 100° C

Lissy 3

R6 Pipetting
ELISA Pipetting

Centrifuges



Automated Test System: 37°C Incubation

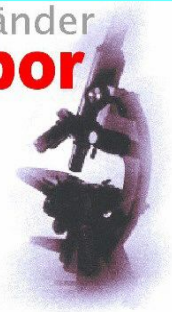


Lissy 1

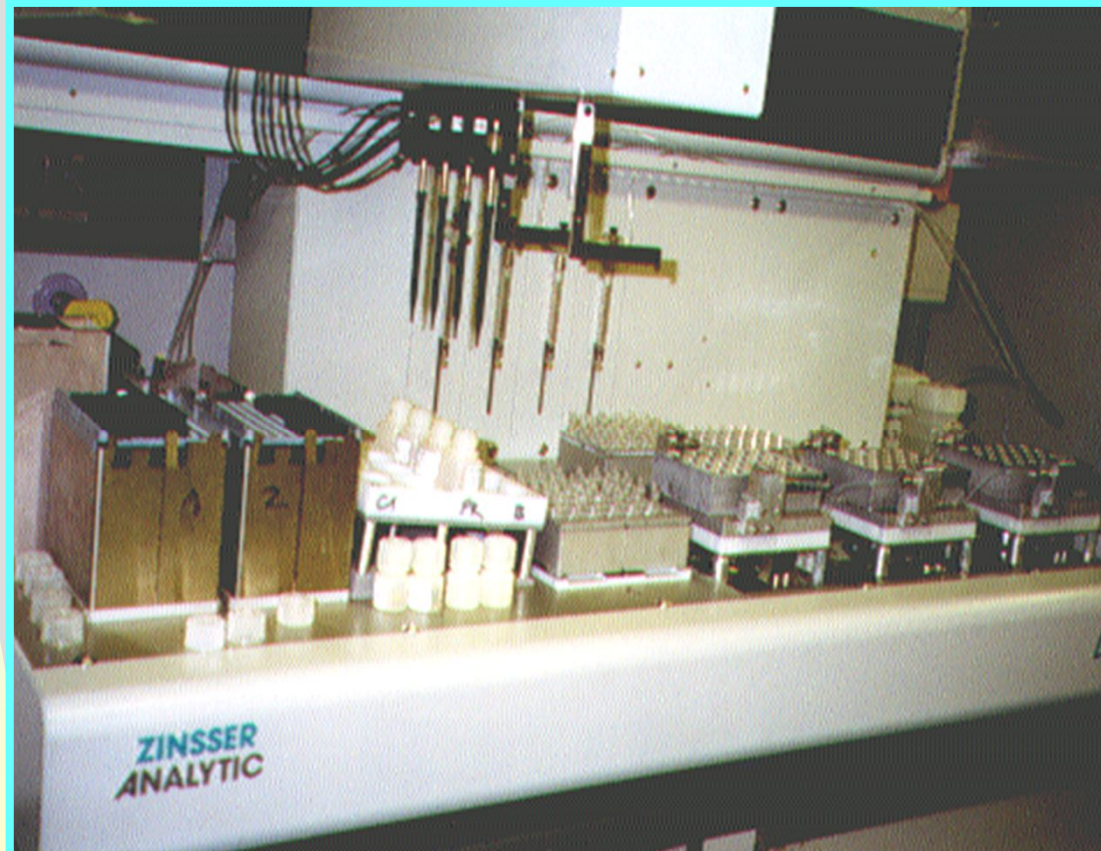


Proteinase Pipetting

Automated Test System: 37°C Incubation



Lissy 1

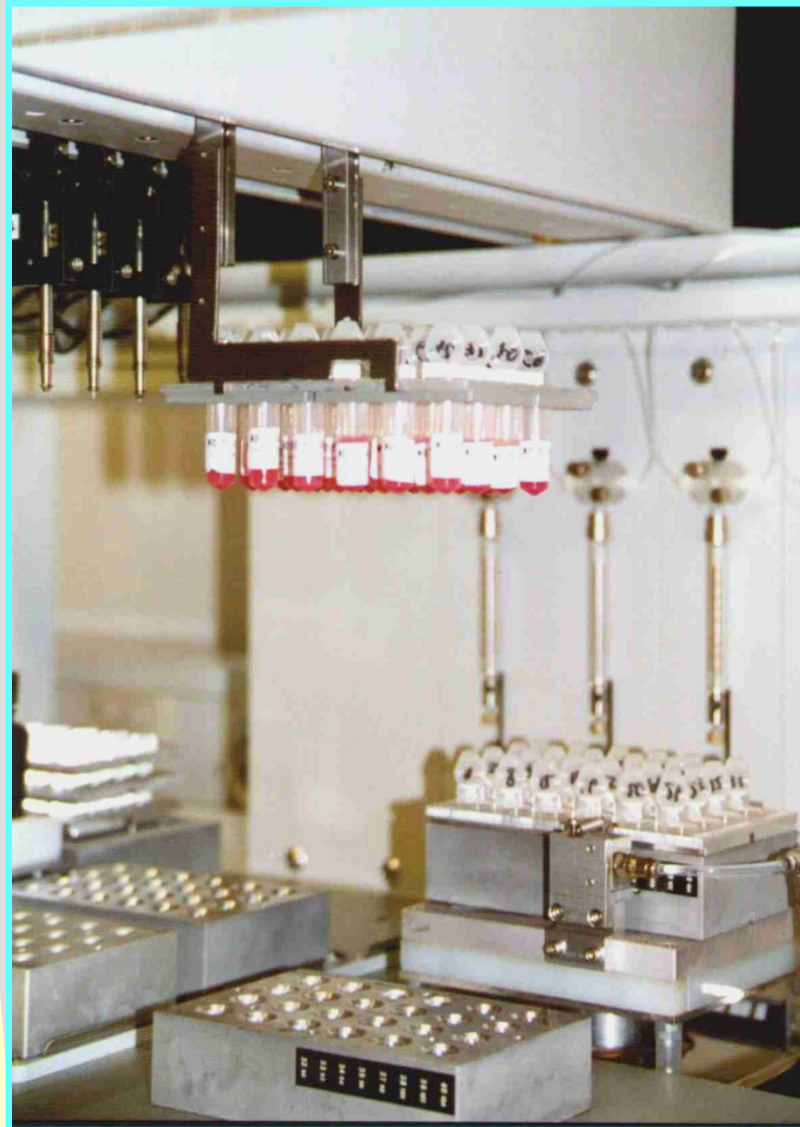


Proteinase Pipetting

Automated Test System: 37°C Incubation



Lissy 1



Transport to Incubator

Dr. habil. Anna Salek

Automated Test System: 37°C Incubation



Lissy 1

**Incubation Station:
Heater and Shaker
with pneumatic
fixation**



Automated Test System: 37°C Incubation



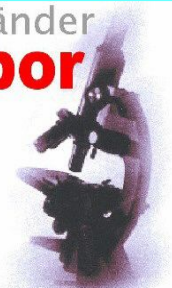
Lissy 1

Pipetting of
Clarifying Reagent



Automated Test System

Dreiländer
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GmbH



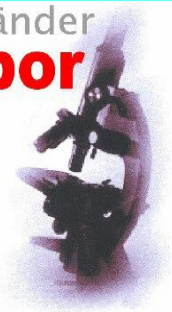
**Volume Control and
Transport to Centrifuge**

Automated Test System: Centrifugation



Sorting from
Transport Racks
into Centrifuge

Automated Test System: Centrifugation



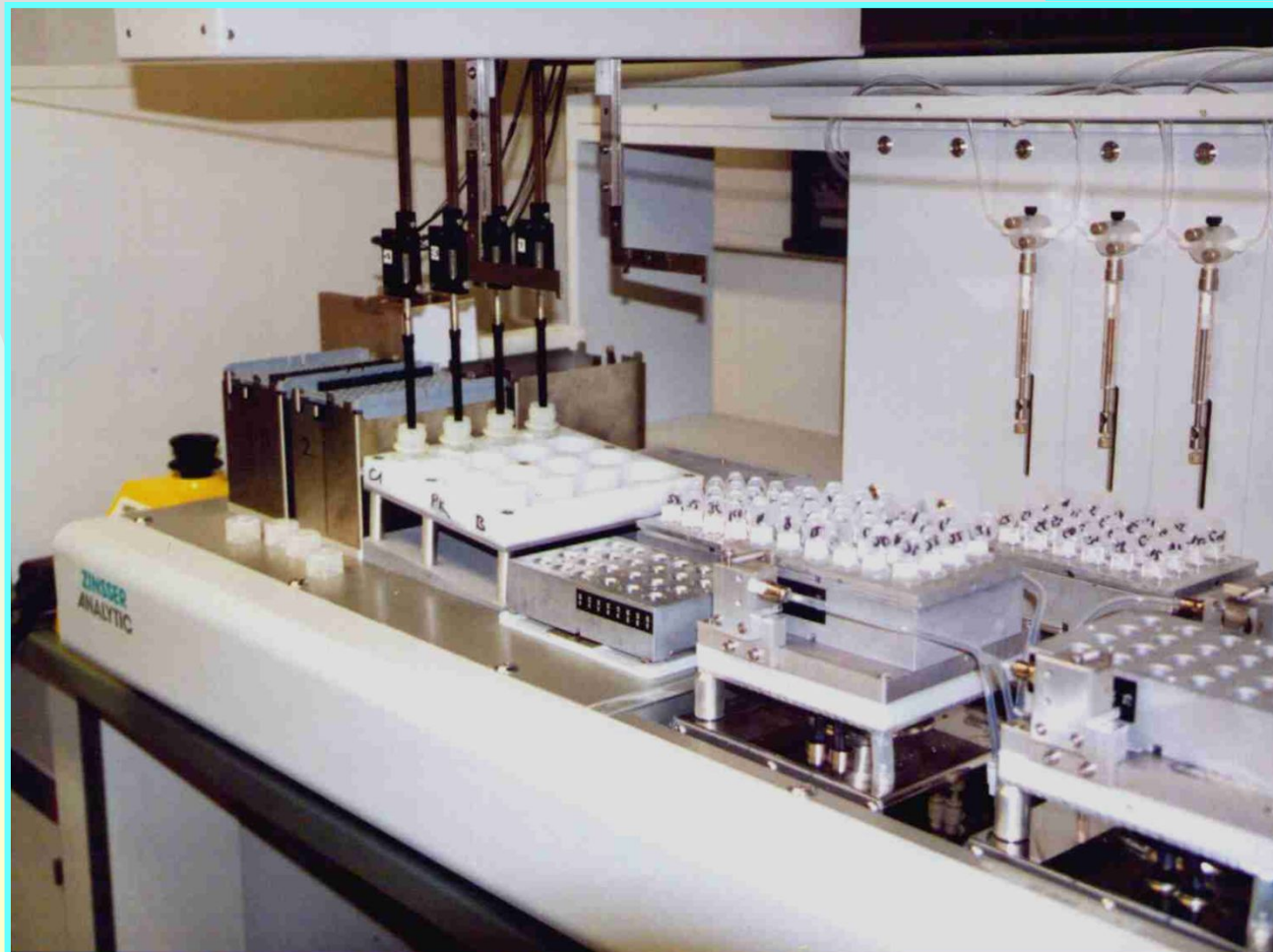
**Sorting back
the tubes for
C1 incubation**





Automated Test System: 100°C Incubation

Lissy 2

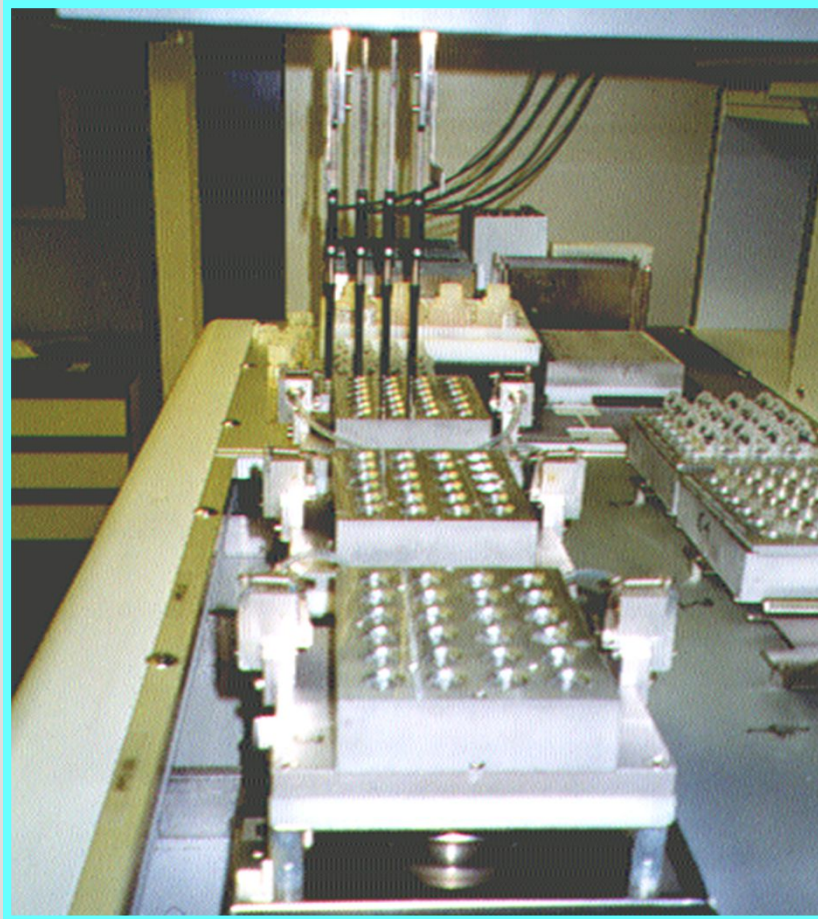


Pipetting and
Incubation of C1



Automated Test System: 100°C Incubation

Lissy 2



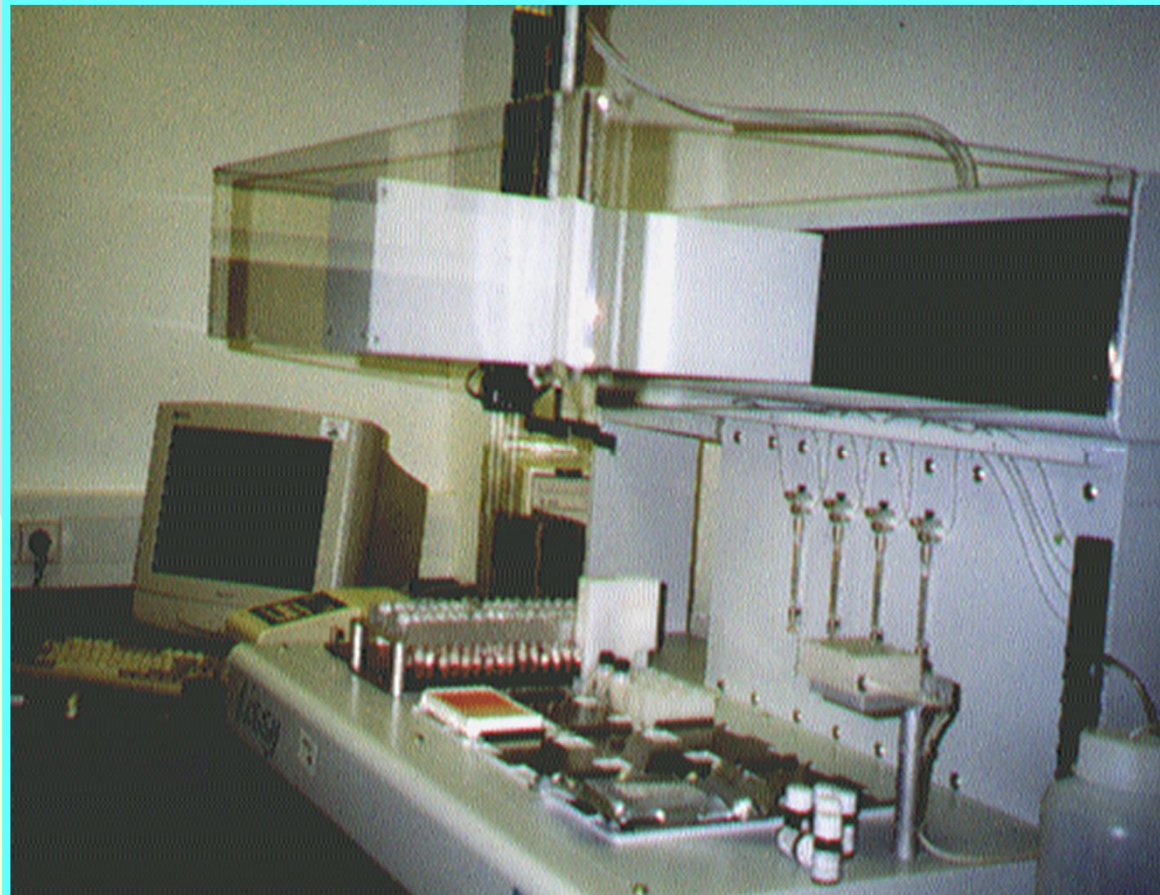
Pipetting and
Incubation of C1



Automated Test System: Transfer to ELISA

Lissy 3

**R6 Pipetting and
Transfer of Samples
to ELISA Plate**





Transfer to ELISA: Photometer



Mikrotiterplatte

Bio-Rad System

„Reader“

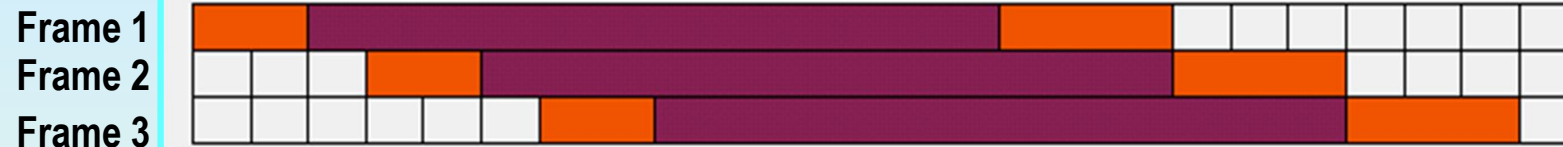


Time Management

Time (Minutes)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

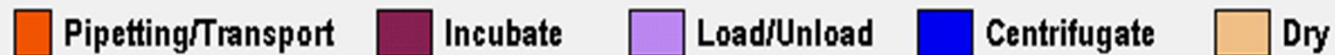
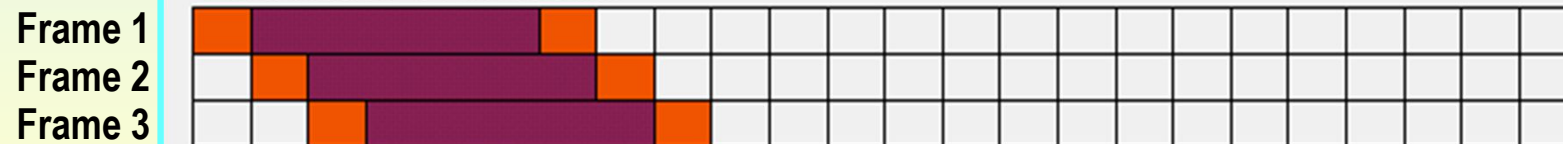
Automat 1: Proteinase Incubation



Centrifuges



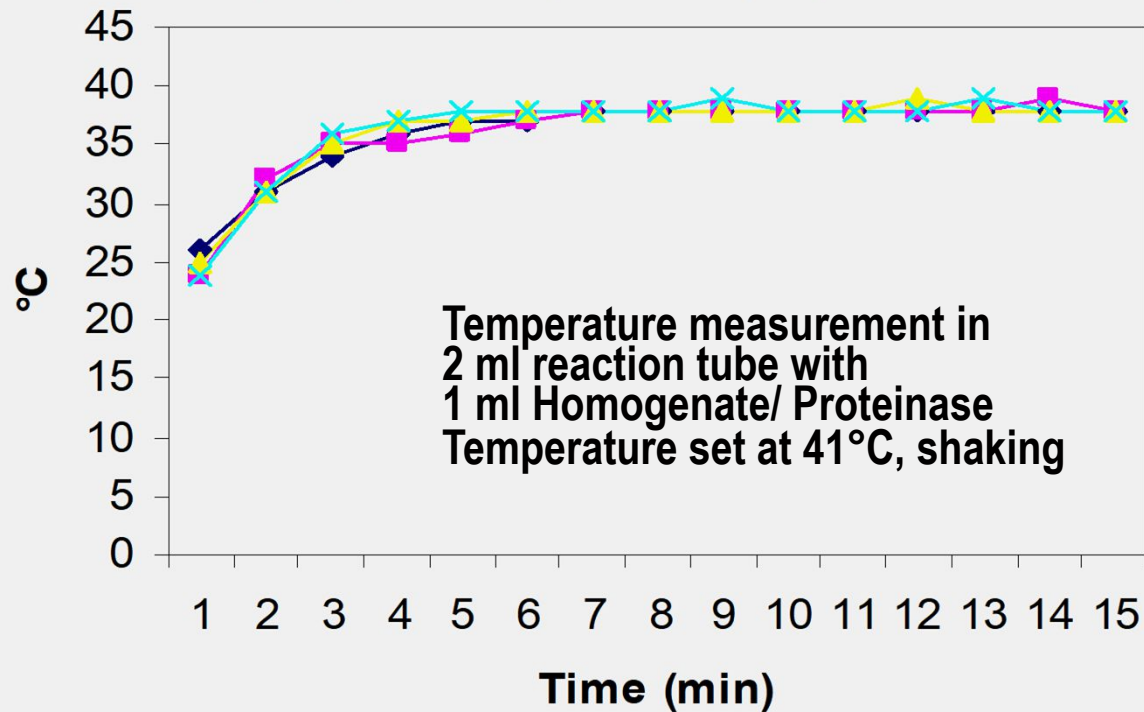
Automat 2: C1 Incubation



Validation: Temperature Kinetic



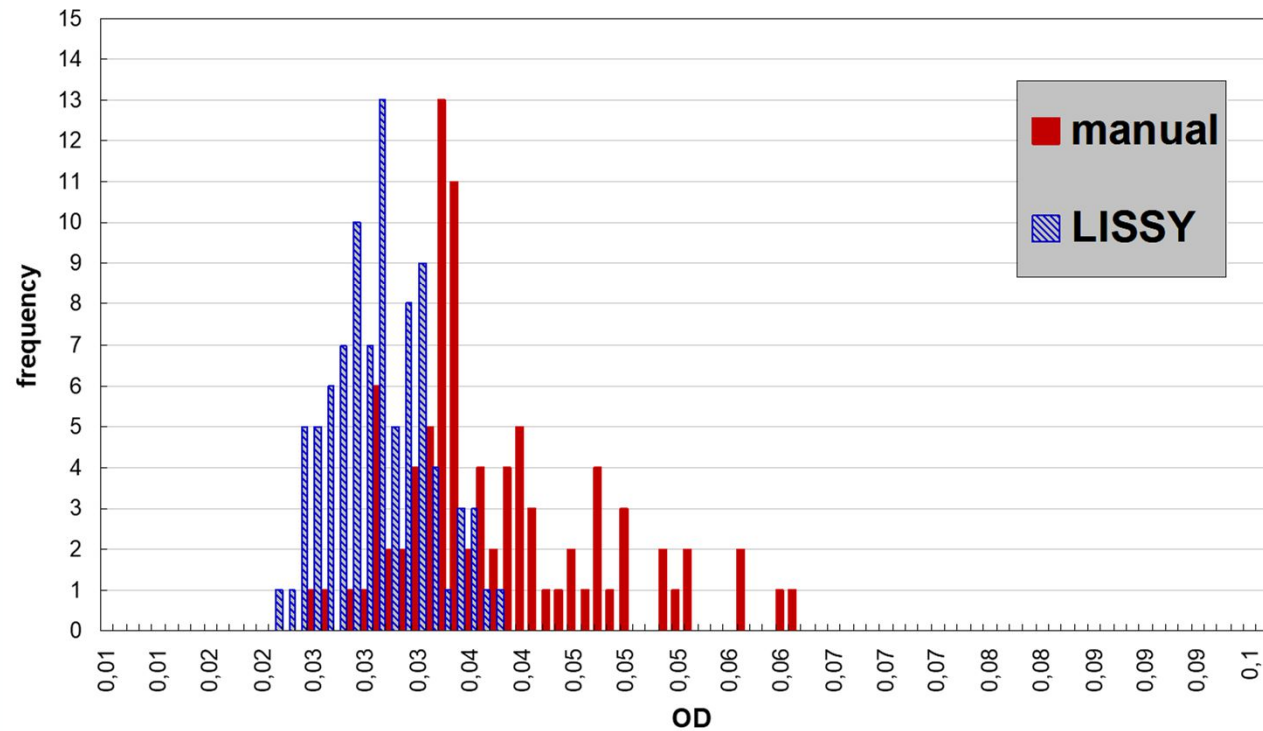
Kinetics of Temperature in Samples on 37°C Thermoshaker





Validation: Histogram of Adsorption

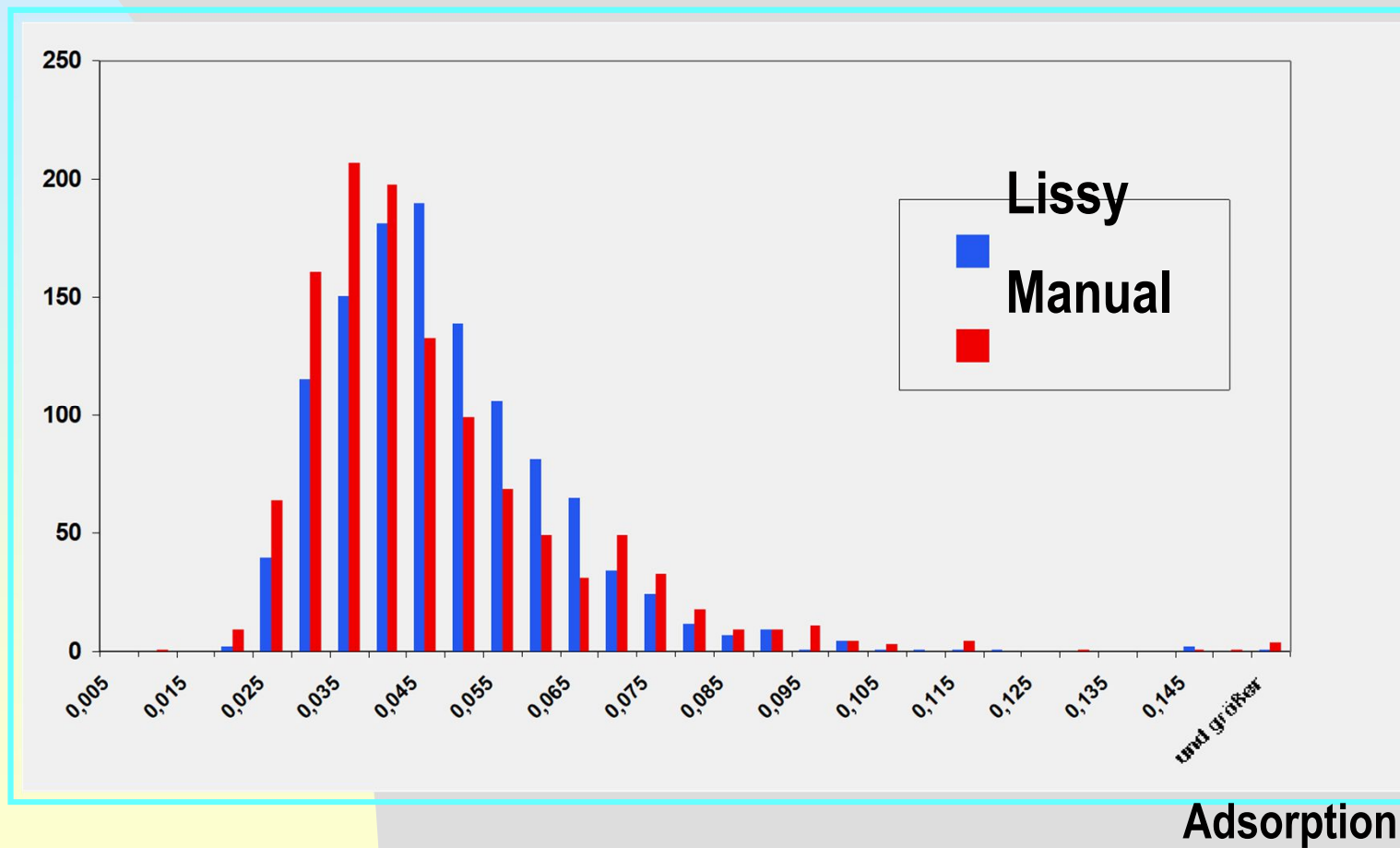
Frequency manual / LISSY n sample = 45 n ELISA=90
[30.3.2001]



Validation: Histogram of Adsorption



Frequency Comparison manual/robotic n= 1170





Reliability of the Automated Assay

Manual System:

near cut-off:

5210 samples

7

0,13 %

Automated System:

6679 samples

4

0,06 %



Summary

- + good reliability
- + high sample turnover
- + exact time calculation
- + adaptable
- too much manual handling
- high attention
- skilled staff
- more time for preparation of samples and reagents



People behind the Robotics

R. Kronet
K. Eckstein
B. Schmidt
Dr. A. Rüger

Zinsser Analytic
Frankfurt:

Dr. F. Kaiser

