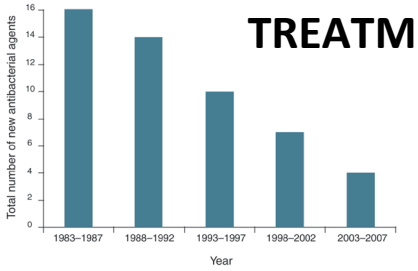
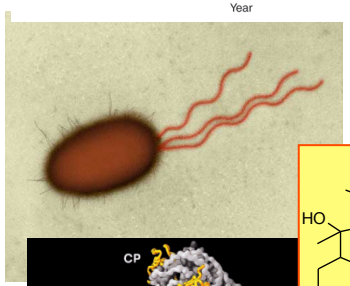
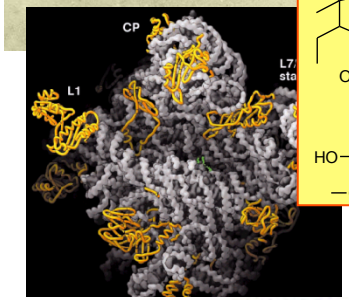
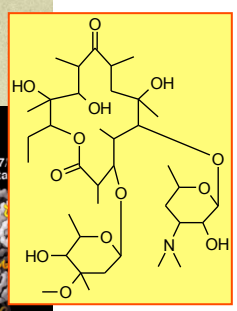
RESEARCH ON ANTIBIOTICS AND ANTIBIOTIC RESISTANCE IN ESTONIA

TREATMENT

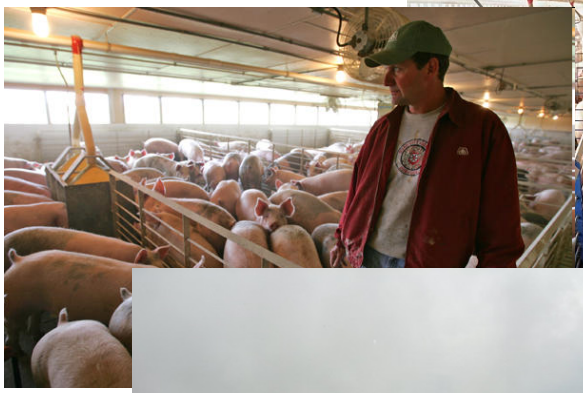


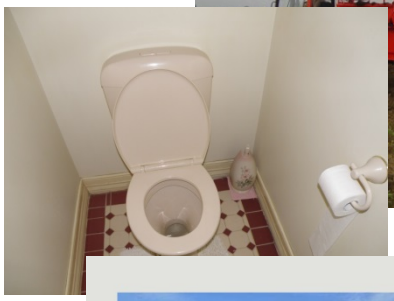


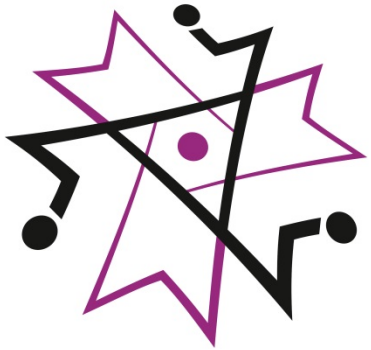




SPREAD OF RESISTANCE







Eesti Teadusagentuur
Estonian Research Council

SURVEILLANCE

European Union
Regional Development Fund

Investing in your future

CENTER OF EXCELLENCE IN CHEMICAL BIOLOGY

Connects six research groups from University of Tartu and Tallinn University of Technology

The expertise combines:
Molecular modelling
Organic synthesis
Biochemistry
Microbiology

The topics include:
Biochemical mechanisms of antibiotic action and antibiotic resistance
Mechanisms of persister formation and development of antibiotics effective against persisters / biofilms.

NATIONAL HEALTH PROGRAMME TOPIC:
TRANSFER ROUTES FOR ANTIBIOTIC RESISTANCE

The aim is to obtain a wider picture on the transfer routes of antibiotic resistance.

The partners include University of Tartu (Institute of Medical Microbiology and Institute of Technology), University of Life Sciences (veterinarians), hospitals.

The sampling includes:
Hospital patients with bacterial infectious diseases
Healthy human carriers
Pig farms: the animals
Pig farms: farm personnel
Pig farms: manure, sludge
Pig farms: leakage from sludge to the ground water
Waste water treatment plants
Lakes and rivers
Dog – dog owner pairs

The strains are being characterized by whole genome sequencing.

National Health research programme

Appropriate dosing of antibiotics in severe infections (PK/PD)

NATIONAL BIOTECHNOLOGY PROGRAMME TOPIC:
BETTER DIAGNOSTICS FOR ANTIMICROBIAL RESISTANCE

The partners include University of Tartu and a SME (Quattromed).

The aim is to develop DNA based detection systems for resistance genes.

NATIONAL ENVIRONMENTAL TECHNOLOGY PROGRAMME TOPIC: DRUG RESIDUES AND NANOPARTICLES IN WASTE WATER

The topic includes antibiotic residues and spread of resistance genes.

The aim is to evaluate the impact of released pharmaceuticals and resistance genes on the environment.

Improved waste water treatment strategies are being developed.

COMPETENCE CENTRES PROGRAM

Developing new detection technologies for antibiotic residues in milk.

Toonika Rinken
Institute of Chemistry
University of Tartu

Competence Centre for milk biotechnologies

Probiotics

Competence Centre for milk biotechnologies


SEVENTH FRAMEWORK
PROGRAMME

FP 7

University of Tartu, Institute of Medical Microbiology is participating in projects related to antibiotics and antibiotic resistance:

NeoMero
"European multicenter network to evaluate pharmacokinetics, safety and efficacy of Meropenem in neonatal sepsis and meningitis"
01.01.2010 – 31.12.2013

ARPEC
"Antibiotic Resistance and Prescribing in European Children"
01.04.2010 – 31.03 2013

NeoVanc
"Treatment of late onset bacterial sepsis caused by Vancomycin susceptible bacteria in neonates and infants aged under three months"01.01.2014-31.12.2017

Mon4Strat
"Therapeutic Beta-Lactams MONitoring for STRATified and
Dose adjusted treatment of hospital-acquired pneumonia: improved efficacy, decreasedtreatment length, and reduction of emergence of resistance"
01.01.2014-31.12.2017

	ACADEMIC	SME
STUDIES ON THE MECHANISMS OF ACTION OF ANTIMICROBIAL COMPOUNDS	UT	
PRECLINICAL DEVELOPMENT OF NEW ANTIBIOTICS	UT, TUT	
DEVELOPMENT OF ALTERNATIVE TREATMENT STRATEGIES (PROBIOTICS)	UT, EUL	CC Milk
IMPROVING CURRENT PRACTICES / DOSING	UT	
DEVELOPMENT OF NEW DIAGNOSTICS	UT	Quattromed, CC Milk
DEVELOPMENT OF BETTER WASTE WATER TREATMENT STRATEGIES	UT, EUL	
SURVEILLANCE OF RESISTANCE TRASFER ROUTES OF RESISTANCE (HUMAN, ANIMAL, ENVIRONMENT)	UT, EUL	Quattromed

HOSPITALS, SURVEILLANCE INSTITUTIONS AND LABS

FUTURE ????

jpiamr

Joint Programming Initiative on Antimicrobial Resistance

Water JPI