

40 researchers from **6** disciplines at Malmö University
- in fruitful collaboration with regional industry



BIO FILMS INTERFACES

Biofilms – Research Center for Biointerfaces

www.mah.se/biofilms

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IN PARTNERSHIP WITH THE
Knowledge Foundation ><



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**BIO FILMS
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Malmö University

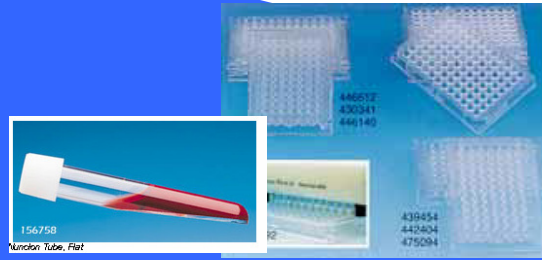
1. Malmö University was founded in 1998
2. Today Sweden's eighth largest university of undergraduate studies
 - 21 000 students
 - 90 education programmes
 - 500 courses
3. The university has played a central role in the transformation of Malmö from industrial town to centre of learning
4. Four multidisciplinary school and faculty areas:
 - Faculty of Culture and Society
 - **Faculty of Health and Society**
 - **Faculty of Odontology**
 - **School of Technology**
 - (and School of Education)



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Eurodiagnostica AB



AkzoNobel AB



Arcam AB



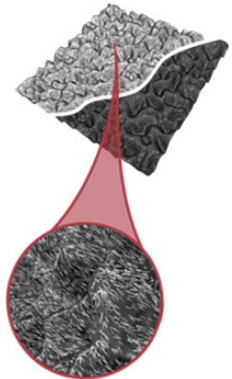
COMMON GOAL OF RESEARCH:

Understanding, prediction and control of material/biomolecule/cell/tissue interactions with medical, dental, food, and environmental applications

AnoxKaldnes AB



Promimic AB



Camurus AB
AstraZeneca



Sinclair Pharma AB
Arla Foods



Gambro AB





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Project list 2008

(31 projects)

Cell-surface interactions

1. The influence of biochemical coat for implant bone incorporation. At this stage pilot project funded by central Malmö University funds
2. Cell-to-bio-mimetic interface interactions (EU Marie Curie Research Training Networks)
3. **EuroDiagnostica; Bioassay: New concept for lipid-based surface coatings in bioassays**

Transport phenomena

1. **AstraZeneca; Hydration. Interactions between pharmaceutical materials and water**
2. **AkzoNobel; Bioavailability of active ingredients used in agriculture**
3. Mathematical modeling of diffusion processes in heterogeneous structures
4. Effects of hydration on structural, rheological and transport properties of mucus
5. Stress driven diffusion
6. Water – a crucial factor in regulating biomembrane permeability (FLÄK-project: In collaboration with PhysChem1, LU and Camurus AB)
7. Local anaesthesia improves hand function (In collaboration with HandSurgery , UMAS)
8. Comparison between different in vitro techniques for penetration measurements of topical drug products (In collaboration with Galenica AB)
9. Miniature biofuel cells for self-contained bio-devices: electron transfer in three-dimensional nanobiostructures. (VR-project+ pending EU funding)
10. Grinfeld surface instabilities (VR-project)
11. Stress corrosion (VR-project)
12. Hydrogen transport in metals (VR-project)
13. Hydrogen embrittlement of hydride forming metals (KK-project)

Interactions at biointerfaces

1. **Camurus; Drug carrier interactions at biologically relevant interfaces**
2. **SinclairPharma; Adsorption and biofilm formation at oral interfaces**
3. Symptomatic vs. asymptomatic atherosclerotic plaques (In collaboration with CRC, LU)
4. **Kemira; Coagulation: Investigation of coagulant function on interfaces covered by adsorbed extra cellular polymers**
5. TetraPak AB, Stora Enso AB: Fracture of biofibre-, polymer- and metal composites (KK-foundation)
6. Anordica AB, Arcam AB: Biocompatibility of metals (KK-project)

Microbial biofilms

1. **ArlaFoods; Investigation of interactions between osteopontin and oral biofilm bacteria**
2. **AnoxKaldnes; Investigation and modelling of convection in biofilms for different carriers**
3. **SinclairPharma; Adsorption and biofilm formation at oral interfaces**
4. **Gambro; Biofilm formation on Peritoneal Dialysis catheters**
5. Biofilm activity as a marker to identify patients at risk of caries
6. **Arcam; Biologically induced stress corrosion crack growth**
7. Activities of microbial biofilms on bioactive surfaces
8. Cell reaction to surface contact
9. Biocorrosion/Physiological/Microbial activity at implant surfaces

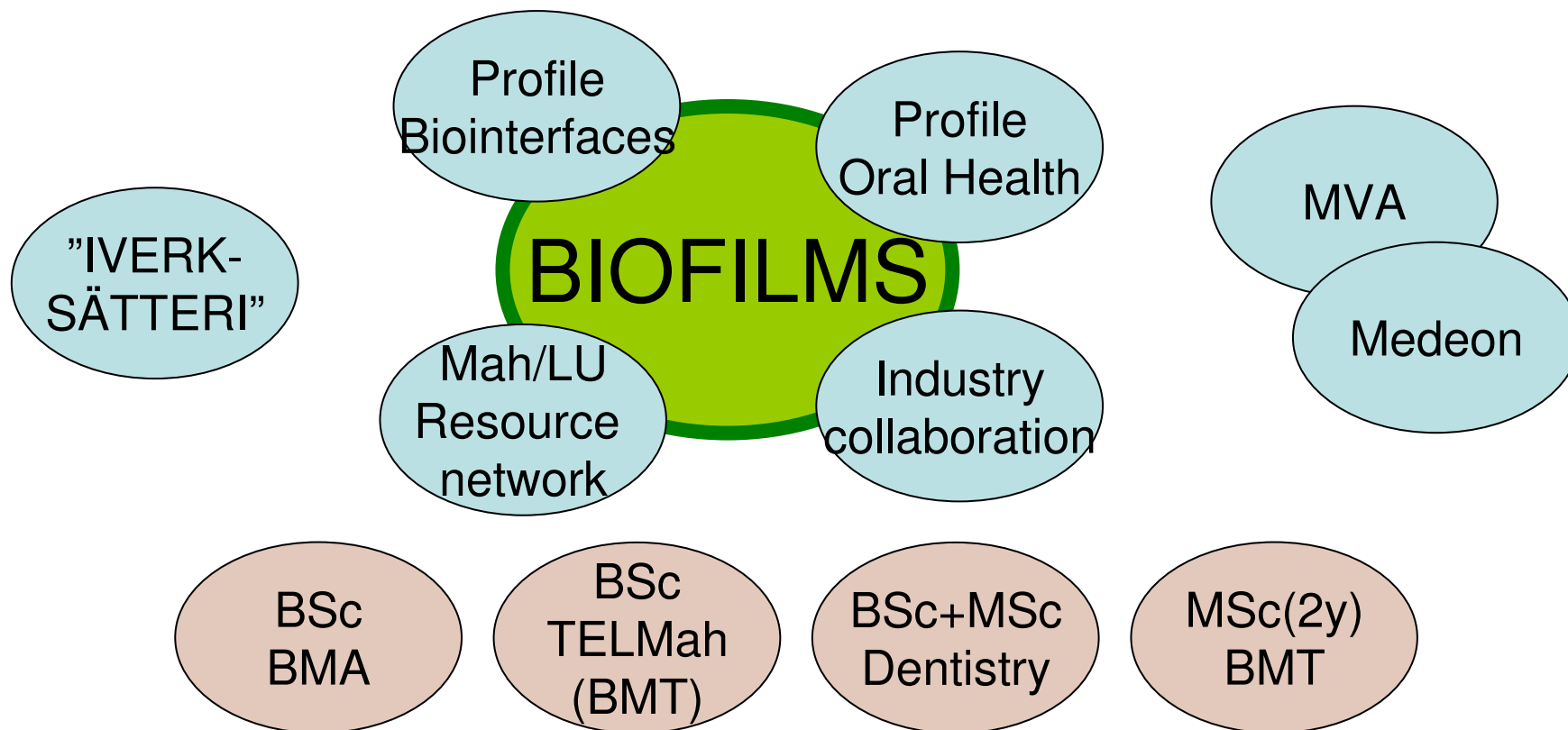
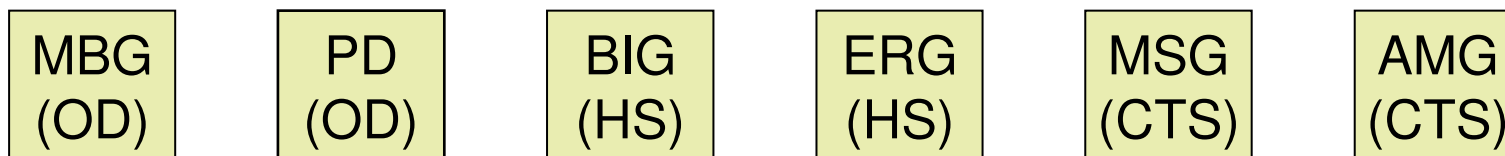


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Environment





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Achievements 2008

Among others:

- 67 publications in international journals
 - Impact factors 10.031 – 1.227
 - Citations 5800 permanent staff; 1200 junior researchers
 - 3 Members >500 citations each
- 44 contributions at conferences and 24 posters
- 2 public conferences, 2 member days, 2 internal workshops and 1 PhD-student day
- 2 researchers accepted as Assoc. Professors
- 1 PhD-thesis defence
- 6 new PhD-student positions announced
- New SEM (Zeiss EVO-10LS with Oxford EDS IE350XT)
- New holgraphic microscope (PHI Holomonitor)
- New *in vitro* methodology (Franz and Bronaugh type cells)