

Technology of the Month

Denne måneds teknologi kommer fra DTU Food, som arbejder med matematiske modeller (QSAR), der kan anvendes til at identificere farlige kemiske forbindelser i materialer. QSAR modellering kan anvendes til at forudsige toksisk effekt og potentielle helbredsrisici af kemiske stoffer, fx i forbindelse med udvikling af medicinsk udstyr.



Medico Bazar 2012

Den 10. januar blev den årlige Medico Bazar afholdt. Bazaren var i år blevet udvidet til at inkludere besøgende fra virksomheder, hospitaler, investorer og andre, der var interesserede i at se og opleve et bud fremtidens medicoteknologier og -løsninger. Dette tilbud blev der taget godt imod, i stor stil. Foruden de 110 udstillere kom der lidt over 300 besøgende. Vores efterfølgende survey har vist at 52 % tog hjem med konkrete møder, og hele 87 % fik kontakt til nye mulige samarbejdspartnere.

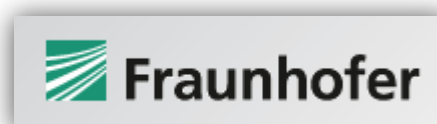
I 'Speakers Corner' blev der afholdt syv spændende power-oplæg om alt fra Lean i R&D processen til måling af virksomhedens innovationskompetence. Materiale fra arrangementet herunder præsentation fra Speakers Corner kan downloades på vores hjemmeside på følgende link: [Medico Bazar](#)



Samarbejde med tyske Fraunhofer

Et af de præsenterede emner på Speakers Corner ved Medico Bazar var en interessant mulighed for samarbejde med Fraunhofer i Tyskland. Innovation Center Denmark, München afholder i samarbejde med Fraunhofer, Institut for Software og Systemteknik (ISST) en workshop ultimo marts for innovative danske Health-IT virksomheder ved ISST i Dortmund. Workshopen har til formål at finde frem til konkrete samarbejdsmuligheder mellem Fraunhofer og de deltagende danske virksomheder. På baggrund af denne workshop udvælges og gennemføres der et antal pilotprojekter i Danmark med det mål for øje at accelerere danske løsninger i det tyske sundhedsmarked med ISST som en aktiv samarbejdspartner.

For yderligere information kontaktes Morten Jacobsen - Innovation Consultant, Life Science - ved Innovation Center Denmark i München, på tlf. +49 (0) 89545854-23 eller pr. e-mail: morjac@um.dk.



Medico Apps - A Practitioners Guide

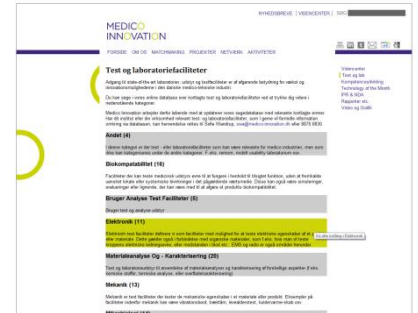
I regi af Devices 'n' Apps netværket har Medico Innovation i samarbejde med Morten Gjørl, Uri Andersen (Umloud) og Jens Peter Andersen (Pallas Informatik) udgivet en guide om udvikling af medico apps. Værket, der fylder små 50 sider, gennemgår de væsentligste elementer i udviklingen af en medico app og giver gode tips og råd undervejs i form af checklister og praktiske cases. Download dit eget eksemplar af guiden i PDF format via vores hjemmeside på følgende link: [MedicoAppGuide](#)



Database over medico test og laboratorium faciliteter

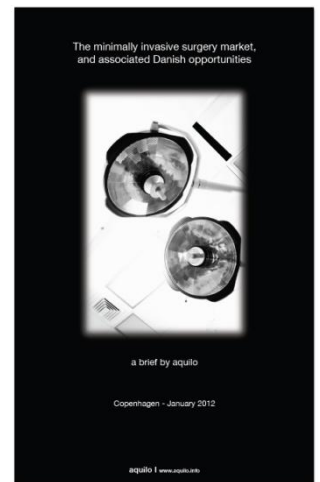
Medico Innovation har i samarbejde med DELTA kortlagt relevante medicotekniske test- og laboratoriumfaciliteter i Hovedstadsregionen. Kortlægningen udvides aktuelt til at omfatte hele Danmark for at gøre det nemmere for virksomheder og udviklere at finde og få adgang/kontakt til relevante faciliteter. Oversigten er nu tilgængelig i en ny database, som er tilgængelig på følgende link: [Test&Lab](#)

Har du kendskab til en testfacilitet eller et laboratorium, der mangler på listen, bedes du kontakte os på mail@medico-innovation.dk.



Udviklingsmuligheder inden for Minimal Invasiv Kirurgi

Medico Innovation har som bekendt flere forskellige fokusområder. Et af disse er Minimal Invasiv Kirurgi, der er kendetegnet ved at reducere eller helt eliminere det kirurgiske indgreb, oftest gennem mindre åbninger i kroppen. Dette har flere fordele; reduceret traume ved indgreb, hurtigere heling og dermed udskrivning fra hospital/retur til arbejdsmarked og minimeret infektionsrisiko. Markedet er præget af få, meget store globale, udenlandske spillere, men der er nicher, hvor der ligger muligheder for danske virksomheder. Det forventes, at efterspørgslen efter MIK teknologi vil øges, i takt med at presset på sundhedsvæsenet stiger. Medico Innovation har derfor bedt konsulent bureauet Aquilo om en analyse af mulighederne for at igangsætte innovationssamarbejder inden for dette område. Resultatet, i form af et kort notat, peger da også netop på nicher som de mest oplagte indsatsområder og opfordrer til et tæt samarbejde mellem industri, forskning og klinik. I løbet af foråret 2012 tager Medico Innovation kontakt til relevante parter for at identificere relevante, konkrete behov, der kan arbejdes videre med. Indtil da kan du læse aquilos brief [her](#), og vi hører meget gerne dine kommentarer hertil.



Sundheds IT Delegation til Kina

Kom til informationsmøde om Sundheds IT delegation tur til Kina i marts. Innovation Center Denmark, Shanghai afholder informationsmøde om programmet og praktiske forhold tirsdag den 7. februar hos Medico Innovation i Lyngby. Tilmeld dig [her](#) og læs mere om delegationen [her](#).

DANISH HEALTH IT DELEGATION TO CHINA

INNOVATION CENTER DENMARK, SHANGHAI



Healthy relations between China and Denmark



Mathematical Models for Ensuring Safer Products and Better Health

Svava Ósk Jónsdóttir, Nikolai G. Nikolov, Marianne Dybdahl, Eva Bay Wedebye and Jay R. Niemelä, DTU Food

Executive Summary

We all are exposed to thousands of chemicals as ingredients in various products we use on a daily basis. Only a small fraction of these chemicals have been tested for their toxic effects. With increased demand placed on industries for providing information of the safety of their products, and for ethical and economical reasons, computational methods called QSARs have become a highly important supplement to animal testing in toxicity evaluation.

By such methods many types of chemically induced toxic effects can be predicted, and used for evaluating potential health risks that may be caused by chemical compounds. For example, such models can be used to identify compounds that can potentially induce birth defects or cause DNA damage leading to cancer. QSAR models have had important uses for regulatory purposes for many years.

It would be beneficial also to use such methods in early product development, helping industries to design safer products. A possible application could be to analyse individual chemical compounds of materials used in medical devices for potential toxic effects, for example plasticisers used in plastic materials.

QSARs (Quantitative Structure-Activity Relationships)

QSAR is a mathematical model that links information on the chemical structure of compounds with a specific property. Such a model can subsequently be used for predicting (calculating) the same property for other compounds, given that they are sufficiently structurally similar to the compounds used to build the model. Technically speaking, robust prediction can be obtained for compounds that are within the defined applicability domain of a given QSAR. QSAR models are thus powerful tools for predicting chemically induced adverse effects for compounds with no available experimental data.

The QSAR group at DTU Food and use of QSARs for identifying hazardous chemicals

The QSAR group at the Division of Toxicology and Risk Assessment at DTU Food has developed a unique toolbox for predicting potential health risks of chemicals. A collection of the groups own in-house and licensed QSARs are used to identify chemical compounds that can potentially cause acute toxicity, allergy or skin irritation, genotoxicity, carcinogenicity, developmental toxicity (birth defects), cardiotoxicity, endocrine disruption, and most recently toxic effect on the liver and the kidney, as well as metabolism in humans. Most of these models are either built on data from *in vivo* and *in vitro* studies, with a few models based on human clinical data. More recently, the group has put increased focus on gaining better understanding of the underlying biological mechanisms causing different adverse effects.

Application of QSAR models for regulatory use

The QSAR group has for over a decade used QSARs for evaluating adverse effects of chemicals for regulatory use in close collaboration with Danish EPA, OECD and other parties, mainly focusing on environmental compounds and chemicals in consumer products. As a part of this effort QSAR predictions for a vast amount of compounds have been made available in "The Advisory list for self-classification of dangerous substances" and "The Danish QSAR database". The group also maintains an in-house database with QSAR predictions for more than 150 effects for up to 188,000 compounds.

www.medico-innovation.dk

Kunne du tænke dig at promovere relevante medtech aktiviteter i vores nyhedsbrev?

Så skriv til Sofie Wandrup swa@medico-innovation.dk

New application areas, design of safer products

More recent interest have been in evaluating hazards caused by food additives and food supplement, and in a recent project, the toxic effects of flavoring compounds were predicted by QSARs.

Another new area of interest to the group is to apply the QSAR models in product development, by helping industries to evaluate the safety of chemical substances in their products through collaborative projects. QSAR model predictions can be made for a large number of compounds, and we envision that such information can help product developers to avoid chemicals with problematic adverse effect. In a recent project, the group has contributed to analysis of new plasticizers to be marketed.

Research team and contact information

This research effort was started by Jay R. Niemelä and Eva Bay Wedebye more than ten years ago. Since then Gunde E. Jensen, Nikolai G. Nikolov, Tine Ringsted, and most recently Marianne Dybdahl and Svava Ósk Jónsdóttir joined the team.

Feel free to contact us at: sojo@food.dtu.dk (Svava), nign@food.dtu.dk (Nikolai), mdyb@food.dtu.dk (Marianne), ebawe@food.dtu.dk (Eva) or jarn@food.dtu.dk (Jay).

Links to further information

“The Advisory list for self-classification of dangerous substances” is available in searchable form at:

http://www.mst.dk/Virksomhed_og_myndighed/Kemikalier/Stoflister+og+databaser/Vejledende+liste+til+selvklassificering+af+farlige+stoffer/

Reports documenting the list and the underlying QSARs have been published on the Danish EPA web-side: Jay R. Niemelä, Eva Bay Wedebye, Nikolai G. Nikolov, Gunde E. Jensen and Tine Ringsted. The Advisory list for self-classification of dangerous substances, The Danish Environmental Protection Agency, Environmental Project No. 1322 2010, <http://www.mst.dk/Publikationer/Publications/2010/06/978-87-92617-64-4.htm> and CLP-version, Ver. 3 (December 2010) Environmental Project No. 1351 2010, <http://www.mst.dk/Publikationer/Publications/2010/12/978-87-92708-58-8.htm>

The Danish (Q)SAR database is available at: <http://qsar.food.dtu.dk/>