**Project title** | **Disulfiram and its analogues for the treatment of cancer**
---|---
**Mentor 1** | Fredrik Björkling Professor, Dept of Drug Design and Pharmacology (fb@sund.ku.dk)
**Mentor 2** | Nils Brünner, Professor, Dept Drug Design and Pharmacology and Scandion Oncology A/S (nbr@sund.ku.dk)
| Jan Stenvang, Assoc Prof, Dept of Drug Design and Pharmacology and Scandion Oncology A/S (stenvang@sund.ku.dk)
**Framework** | The Dept of Drug Design and Pharmacology covers the full spectrum of disciplines for early drug discovery. From target identification, through design and discovery of hit compounds and optimization of these to lead and candidate drug compounds. Compounds can be assessed for biological activity and toxicology and formulated for in vivo tests. For the more elaborate and late preclinical development external collaborations are most often used. In this context, the three mentors will cover all these phases from chemistry (FB) through biological assessment of new hit and lead compounds (JS) to early stage tests of compounds in humans (NB). The candidate will be member of a team of scientists representing academic and industrial researchers and thereby not only obtaining skills in translational research but also in entrepeneurship and inventorship.
**Project synopsis** | Presently, Disulfiram (Antabus), used in the treatment of chronic alcoholism, undergoes clinical trials in cancer. Recent findings have shown that Disulfiram in combination with copper has efficient anticancer activity in vitro and in in vivo models of cancer, including reversal of certain forms of drug resistance, which warrants further exploration of this compound class as a new treatment modality in cancer. Therefore, the project covers both the early discovery phase of novel
disulfiram analogues and also later stage assessment of these (in vitro and in vivo preclinical efficacy assays) in comparison with disulfiram. The post doctoral fellow will be in charge of the design and synthesis of new disulfiram analogues and their tests in bioassays. He/she will also have the opportunity to follow our current clinical trials with disulfiram as a front-runner compound validating the compound class in humans. Thus, the project is believed to be truly translational in its nature.

<table>
<thead>
<tr>
<th>Profile of potential fellow</th>
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<tbody>
<tr>
<td>• PhD in medicinal chemistry with solid knowledge and hands on experience in medicinal chemistry</td>
</tr>
<tr>
<td>• Knowledge in biochemistry and <em>in vitro</em> bioassays, used in early drug discovery.</td>
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<tr>
<td>• Interest in expanding knowledge in preclinical assessment of candidate drugs and translational research.</td>
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<tr>
<td>• Independently working team-player with a curious and inventive personality</td>
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</tbody>
</table>
**Name**  
Fredrik Björkling

**Title**  
Professor

**Current dept.**  
Department of Drug Design and Pharmacology

**Current position(s)**  
Professor

**Education/training**  
1985, PhD Stereoselective and enzyme catalysed synthesis, Royal Institute of Technology (RIT), Stockholm, Sweden; 1980, Master of chemical engineering (RIT)

**Scientific career profile**

- Over 25 years in leading management positions, Director level, in big, mid pharma, biotech industry and academia (NovoNordisk, LEO pharma, Topotarget, KU).
- Leading roles in drug discovery and development leading to marketed products, e.g. in cancer and dermatological diseases.
- Scientific expertise in drug design and discovery in several therapeutic areas including cancer, inflammation, infectious diseases, diabetes and skin diseases.
- Leader of task-forces for development of new research strategies in cancer, skin diseases and diabetes.
- Extensive experience in people management, head of department, in industry and academia, successfully building highly qualified research teams and departments, including research budgeting and monitoring.
- Member of several research management teams, with expertise in project and portfolio management and as project coordinator/leader.
- Leading roles in collaborations with external partners, companies, CROs and institutions.
- Competence in due diligence during in- and out-licensing, and facilitation of mergers as part of business development.
- Coordinator of WPs in EU sponsored projects, currently running a discovery Hub within antibacterials, within the frame of Inventive Medicines Initiative, ENABLE a 80 M€ project. Co-chair Center of Peptide-based Antibiotics, Cepan a

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1 Do not exceed two pages.
The CV’s and project synopsis of each mentor team will be posted on the programme webpage in advance of the admissions process to the programme.
Bibliometric summary

<table>
<thead>
<tr>
<th>Number of publications</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patent applications</td>
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</tr>
<tr>
<td>Number of first authorships</td>
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</tr>
<tr>
<td>Number of second authorships</td>
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</tr>
<tr>
<td>Number of last authorships</td>
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<tr>
<td>Number of citations</td>
<td>3000</td>
</tr>
<tr>
<td>h-index</td>
<td>25</td>
</tr>
</tbody>
</table>


Contributions to mentoring, training, supervision

I will provide an open scientific dialogue with room for individual development sharing many years of drug discovery and development knowledge and expert insight in translational research through highly competent collaborators.

Supervision, include their subsequent career paths: M.Sc. (several) and Ph.D. (6) students, and large research groups of mainly post doc researchers ranging from 5-40 employees. Many of these students/researchers have advanced into key positions in pharmaceutical industry. Currently I supervise, with direct reference, 3 post docs and one MSc (just finished). Also, I act as project manager and responsible for the training of 5 PhD students in the ITN project SAFER.

Contribution to teaching. Course responsible for MSc course in Drug Discovery and Development. Course responsible for two courses in the post graduate Master education MIND covering the whole drug discovery process including translational research.
Name | Nils Brünner  
---|---  
Title | Professor emeritus and CEO, Scandion Oncology  
Current dept. | Department of Drug Design and Pharmacology  
Current position(s) | Professor emeritus  
Scientific career profile | 1979 MD  
1988 DMSc  
1987-1989 education in cellular and molecular biology, USA  
1979-1987 training in clinical oncology  
1989-2002 afdelingslæge/overlæge Finsencentret, Rigshospitalet  
1989- Gruppeleder/afdelingsleder-  
2006-2009 BoD EORTC  
2009-2015 Head, Sino-Danish Breast Cancer Research Centre (Grundforskningscenter)  
2018 CEO, Scandion Oncology  
Mainly performed translational cancer research with a focus on drug resistance mechanisms including search for predictive biomarkers and drugs that interfere with drug resistance.  
Number of publications 374, h-index 58.  

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<table>
<thead>
<tr>
<th>Contributions to</th>
<th>I will use my expertise to mentor within the later steps of preclinical cancer drug development. It will be important to motivate and encourage the person to participate also in this part of drug development.</th>
</tr>
</thead>
<tbody>
<tr>
<td>mentoring,</td>
<td>I have supervised more than 35 PhD students who all have obtained their PhD degree. I have always been teaching pregraduate and post graduate students and have served a supervisor for a large number of projects (bachelor and master students).</td>
</tr>
<tr>
<td>training,</td>
<td></td>
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<tr>
<td>supervision</td>
<td></td>
</tr>
</tbody>
</table>
Name | Jan Stenvang  
---|---  
Title | PhD  
Current dept. | Department of Drug Design and Pharmacology  
Current position(s) | Senior Researcher  
Education/training | 2004, PhD PhD from The faculty of Health Sciences, UCPH. 1999 MSc degree in Molecular and Cellular Biology from SDU, Odense, Denmark  
Scientific career profile |  
- June 2017 – present: CSO at Scandion Oncology (www.scandiononcology.com)  
- Sept. 2013 – present: Associate Professor/Senior Researcher at University of Copenhagen (UCPH), Department of Drug Design and Pharmacology, Denmark (3 laboratory technicians, 12 PhD students, 16 MSc students, 15 bachelor students).  
- April 2009 – Aug. 2013: Group Leader (Post Doc) of the “Cancer Biomarkers for Early Detection” at UCPH, Dept. of Veterinary Disease Biology, Section for Molecular Disease Biology.  
- March 2008- Feb. 2009: Group leader of the microRNA “Lead Discovery” group at Roche Innovation Center Copenhagen (formerly Santaris Pharma), Denmark (5 laboratory technicians, 2 post docs and 1 PhD student)  
- August 2006-Feb. 2008: Group leader (Post Doc) at the microRNA Research Unit, UCPH (4 PhD students)  
- March 2003- July 2006: Group leader (Post Doc) at the Danish Cancer Society (Tumor Endocrinology) (1 laboratory technician, 2 PhD students and 6 MSc students).  
- Spring 2002: Working in Professor Cy Stein’s group, Columbia University, New York, USA  
- Nov. 1999 – Feb. 2000: Research fellow at the University of Southern Denmark (SDU)  
Bibliometric summary | Patents  

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3. PCT patent application no. PCT/EP2017/061823 was filed 17 May 2017 claiming priority from priority founding application no. PA 2016 70325 (filed 17 May 2016): “Combination Treatment of Cancer”
4. PCT patent application no. EP17194754.2 (filed 04 October 2017) entitled “Companion Diagnostics for Colorectal Cancer”
5. PCT application no. 18193008.2 (filed on September 6, 2018) entitled “Composition for treatment of subjects with elevated expression and/or activity of SRPK1”

Publications
69 publications in peer-reviewed journals (9 first authorships and 16 last/corresponding authorships), h-index: 23 (calculated by http://www.scopus.com, excluding self-citations) and 2552 citations in total.
Four text book chapters
Researcher unique identifier: ORCID ID 0000-0001-5647-4828
For complete details on my publications please use this link: http://www.ncbi.nlm.nih.gov/pubmed?term=(((Stenvang J) OR Jepsen JS) OR (jepsen j AND kragelund)) NOT stenvang j

<table>
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</thead>
</table>

I will contribute with expert knowledge in translational cancer research. We have already translated two of our basic research projects into small scale Phase II clinical trials. We are currently writing the clinical protocols for two additional Phase 2 clinical studies. As a mentor, I will help the post doc to realize the potential of bringen basic discoveries to clinical testing, and the many pitfalls on this road.

Supervision: 2002-18 Supervised/co-supervised 2 Post docs, 18 Ph.D. students, 25 Master’s students, 15 Bachelor students, a scientific assistant and 9 laboratory technician. This included supervision in a biotech company.

Teaching

1999 – 2001 Teaching assistant in “Analytical Biochemistry” and “Protein and enzyme chemistry” at SDU
2001 Teaching assistant in “Biochemistry” Frederiksborg Nursing School, Denmark
2004 Lecturing for Medical Doctors “Medical Treatment of Cancer” at Novartis, Denmark
2005 Lecturing for research nurses at Danish Hospitals in “Cell- and Tumor Biology”
2006 Lecturing for Medical Doctors “New Challenges in Treatment of Cancer” at Roche, Denmark
2007 Lecturing on microRNA in the course “Genetic Medicine”, UCPH, Denmark
2010-11 Teaching assistant in “Experimental Pathology” at UCPH, Denmark