INVENTOR’S GUIDE
-An introduction to working with IP innovation at Aarhus University
Research is the core competence of a university, but to create societal impact from this research, technology transfer is of essential importance. The Business Development Team is ready to support and guide you when commercialising excellent research.
The Inventor’s Guide outlines the essential elements of technology transfer at Aarhus University (AU) and Central Denmark Region (CDR).

This guide is provided to answer the most common questions we typically receive from our research community and provides a broad overview of the technology transfer process and services available for researchers. The guide is separated into four parts that can be read separate or as one.

The Technology Transfer Office at Aarhus University also supports inventors from Central Denmark Region including Aarhus University Hospital.
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TECHNOLOGY TRANSFER OVERVIEW

What is technology transfer?

Technology transfer refers to the process by which new inventions are commercialised and brought to market for the benefit of society as a whole. This is done through formal licensing or sale of Intellectual Property Rights (IPR) of a technology to third parties under the guidance of business developers. At AU and CDR, the main type of IPR are patents, but the TTO can also assist with other types of protection, e.g. copyright for software.

What is a Business Developer?

A business developer is an employee at Aarhus University Technology Transfer Office (AU TTO) specialised in bringing technologies from public institutions into society. The business developer does this by several means, among other things:

• Assess the commercial potential of your invention
• Create a commercialisation strategy for your invention
• Secure Intellectual property rights
• Locate suitable funding options
• Assist with pitch training
• Locate and secure missing competences for a potential spin-out, as well as guidance on creating one
• Locate licensees through market research and analysis
• Market your invention to potential licensees

• Negotiate license agreements

**Who** is AU Technology Transfer Office?

AU Technology Transfer Office is an AU service unit composed of business developers along with legal employees. The unit has experience in transferring technologies from a broad range of research fields, and is responsible for managing invention disclosures from all departments as well as CDR Hospitals. You will find more information at Au.dk/tto.

**Why** would a researcher want to participate in the technology transfer process?

The reasons are unique to each researcher and may include:

• Seeing their solution help people

• Making a positive impact on society

• Generating additional lab or departmental funding

• Attracting research sponsors

• Feeling a sense of personal fulfillment

• Achieving recognition and financial rewards

• Gaining new knowledge

• Creating educational opportunities for students

• Seeking a career path outside academia

In addition, researchers at public research institutions have a legal obligation to inform the TTO about any new inventions he or she may have made.

**How** is technology transferred?

The technology is typically transferred through a license or sales agreement in which AU/CDR grants rights for the use of the defined technology to a commercial third party. The commercial party may be an established company or a new spin-out from AU or CDR. The agreement will include terms that require the commercial third party to meet certain performance obligations and to make financial payments to AU or CDR.
The net revenue of these payments will be shared between the inventors and the institution. This provides support for further research, education, and participation in the technology transfer process (Read more here).

**What is the Act on Inventions**

The Act on Inventions is a Danish law from 2009 with the purpose of “Ensuring that research results produced by means of public funds are utilised for the benefit of Danish society through commercial exploitation”. Among other aspects, the act regulates the ownership of any invention created by a researcher employed at a public research institution, and require that the responsible institution attempts to commercialise any inventions it gains ownership of (Read more here).
I have worked closely with the TTO on the IP rights around several inventions, fundraising from InnoExplorer as well as the legal framework for industry collaborations and a total of three spin out companies raising more than 750 million DKK. I have always experienced the TTO staff as helpful, constructive and focused on getting the deal done in a win-win manner. Importantly, TTO listens carefully and prioritizes the entrepreneurial ambitions of the inventor team, providing support and coaching to scientists wanting to turn entrepreneurs.
THE PROCESS

**How** do I work with the Technology Transfer Office?

We encourage you to contact the TTO during your early research activities to be aware of the options that will best leverage the commercial potential of your research. TTO staff are trained to assist you with questions related to marketability, funding sources, commercial partners, patenting and other protection methods, spin-out considerations, internal policies, and much more. To a certain degree, you can decide how much you want to involve yourself – although we encourage you to take an active role in the process.

**How** long does the technology transfer process take?

The process of protecting the technology and finding the right commercial partner is a project that may take months - or even years - to complete. The amount of time will depend on the development stage, the market, competing technologies, the amount of work needed to make the technology ready for market, and the resources and willingness of both you and the commercial partner.

**What** are the typical steps in the process?

The process of technology transfer is summarised in the steps and diagram that follows. Note that these steps can vary in sequence and often occur simultaneously.
Observations and experiments during research activities often lead to discoveries and inventions. An invention is any useful process, machine, composition of matter, or any new or useful improvement of the same. Often, multiple researchers may have contributed to the invention.

An early contact with a business developer at TTO before publication of articles, abstracts, or presentations of posters, orally or in any other form. The purpose is to discuss your (potential) invention and to provide guidance with respect to the disclosure, assessment, and protection processes described below.

The written notice of an invention to the TTO that begins the formal technology transfer process. An invention disclosure remains a confidential document and should fully document your invention so that the possibility for IP protection and commercialisation can be assessed. The TTO will provide you with an assigned business developer and, if necessary, a legal advisor.

The assessment period allows the TTO a two month period to assess the patentability and commercial potential of your invention. During the assessment phase, you and your business developer will conduct patent searches, analyse the market, and assess competitive technologies to determine the invention’s commercial potential. This evaluation process, which may lead to a broadening or refinement of the invention, will guide our strategy on whether to focus on licensing to an existing company or creating a new spin-out.
5 BUSINESS DEVELOPMENT AND IP PROTECTION
The commercial aspects of the project are developed in several ways, eg. by refining the value proposition, putting together a team, creating a business model, drafting a funding plan, and doing market research on current landscape of competitors. In addition, the process to secure protection of the intellectual property rights to the invention is begun. This is carried out so that there is an asset to transfer to a third party. Patent protection begins with the filing of a patent application with one or more government patent offices. Once a patent application has been filed, it typically will require several years and a significant investment to obtain an issued patent.

6 MARKETING & PARTNERING
With your active involvement, your business developer conducts market research on the industry of interest and identify candidate companies that have the expertise, resources, and business networks to bring the technology to market. This may involve partnering with an existing company or creating a spin-out company. Your active involvement is crucial for success.

7a CREATE A SPIN-OUT
If creation of a new spin-out company has been chosen as the optimal commercialisation path, your business developer will support the founders in planning, creating, and funding the spin-out. The TTO team always recommends the founders to consult their own legal and financial advisors when developing a business plan and establishing a spin-out company.

7b EXISTING COMPANY
If an existing company is selected as a potential commercial partner, your business developer will work with that company to negotiate the appropriate license or sales agreement to commercialise the technology. In some cases, there is also a need to conduct feasibility studies generating additional data, before the company can commit to an agreement.

8a LICENSING
A license agreement is a contract between AU/CDR and a third party in which the rights to a technology are licensed to the third party without transfer of ownership. >>>
The agreement regulates the rights and obligations of the licensee, including financial terms. An option agreement is sometimes used to enable a third party to evaluate the technology for a limited time prior to making a decision about licensing.

8b ASSIGNMENT / SALE
An assignment agreement is a contract between AU/CDR and a third party in which ownership to the rights to a technology are transferred to the third party against financial compensation. AU/CDR will no longer have any control over the intellectual property rights to the technology. An option agreement is sometimes used to enable a third party to evaluate the technology for a limited time prior to making a decision about buying the technology.

9 DEVELOPMENT
The licensee continues the advancement of the technology and makes investments to develop the product or service. This step may entail further research and development, regulatory approvals, sales and marketing support, training, and other activities.

In addition, assistance from the researcher(s) might be needed in this step to secure successful commercialisation.

10 REVENUE
Net revenues received by AU are distributed with 1/3 to inventors, departments and the University. While revenue received by CDR are distributed with 1/3 to the inventors and 2/3 to CDR – read more about the distribution of revenue at Au.dk/tto.
Contact the TTO at tto@au.dk or visit our webpage Au.dk/tto, when you believe you have a scientific or technical observation with potential commercial or research value.

Complete and submit the invention disclosure in sufficient time to file a patent application before publicly disclosing your invention or publishing a manuscript – preferably before submitting the manuscript for publication (Read more here).

Take an active role in the process – your knowledge and expertise are valuable assets to both your business developer, but also a potential licensee.

To avoid risking your patent rights and possibly hindering the opportunity to market your invention, contact the TTO before presenting your idea to people outside AU/CDR. Be aware that oral presentation of your invention also count as a publication within the patenting system.

If a patent application has not yet been filed, we will give you a non-disclosure agreement for any external parties to sign before you describe your invention.

On the invention disclosure, include companies and contacts you believe might be interested in your invention or who may have already contacted you about it. Most licenses are executed with commercial entities known by the inventor(s), so your contacts can be extremely useful.

Respond to the requests of the TTO and outside patent counsel. While some aspects of the patent and licensing process will require significant participation on your part, we will strive to make efficient use of your valuable time.

Keep the TTO informed of upcoming publications or interactions with companies related to your technology.
How did the idea of becoming an entrepreneur arise?

I guess it started way back when I was part of a research group at Department of Biomedicine led by professor in Molecular virology, Søren Paludan. Our team discovered a new type of immune mechanism that could recognize virus infections. When I became an associate professor in 2013, I had to form my own research field and wanted to go deeper into that mechanism. Over the following years, combined with accumulating more scientific understanding, I figured out that our findings could have commercial potentials. However, I was not sure where to go with that idea at first.

How did you get started with your entrepreneurial journey?

I got in touch with Claus Elsborg Olesen, who worked as a Research Business Manager at Department of Biomedicine, and he helped develop and mature the idea. We also received some help from NOME (The Nordic
mentor network for entrepreneurship), and in collaboration with TTO, we eventually filed a patent application. Eventually, Claus and I decided to join forces and founded STipe Therapeutics in 2018 as a spinout from Aarhus University with the support of a PreSeed Grant from the Novo Nordisk Foundation. Later same year we became a part of a new initiative – the so called Creation House program at BioInnovation Institute. This entitled a convertible loan which made it possible for us to gear up the RnD program and start interacting with investors. In September 2019, we then raised 20 million EUR in a Series A financing, with a syndicate of Danish and European venture capitals, and at that point, I went on a partial leave from my research activities at the University to dedicate time to the company. In general, there was a clear leap at Department of Biomedicine around 2017/18, with the establishment of multiple spinouts (NMD-pharma, Draupnir Bio and STipe). This fueled a growing mindset on innovation and drug development in the field and at Aarhus University. In STipe Therapeutics, we really want to support this development and contribute to driving it forward. Therefore, we do take part in the community and are always ready to help people with advice and how to move an idea into biotech. I foresee that there is a huge potential within Life Science and drug development at Aarhus University, but in order to reach that potential, we need to strengthen the community, have strong local support and have the right facilities for it to grow.

What has been the biggest challenge in the process?

In general, we have experienced good support on our journey, both from the department, the university and the innovation environment. Our project is difficult, and the fact that so many have supported it has definitely played a part in its success. It has been a challenge to create a project anchored in the university environment, which at the same time is able to grow without compromising on the academic aspect. To do so, everyone needs to understand in which direction you are going – we are trying to generate this synergy that biotech can create. >>>
It has also been a big challenge to find the right competences. Historically, Aarhus University has not been the strongest player within biotech, but this development is turning around, and that makes it much easier to attract great capacities to the environment in Aarhus.

**What** does a typical workweek look like for you in relation to combining your company with your research?

Until recently, I split my time between STipe Therapeutics and my research activities and teaching obligations as an associate professor at Department of Biomedicine. I still have responsibility for my research group where I try to keep the level of funding and publishing the same, so I do work a lot. I normally work within the regular working hours and then again at night and a bit during the weekends, which is then combined with quite a lot of travelling. Thus, it is important to have a strong drive and outstanding support from once family for this to work. But you have to remember that in biotech, the timeline is always against you, and you really need to work hard in order to reach your goals. Luckily, we have a great team in STipe Therapeutics, who help and support each other – and the same holds true for my research team at the university.

To my benefit, it should also be mentioned that there are a lot of synergy between our activities in STipe Therapeutics and my research activities, and it is my experience that you get your knowledge tenfold back when you combine your research with entrepreneurship. You get the best of both worlds. My academic profile has become much sharper, and I have become better at shaping my research with an eye for future commercial potential. So if you can find the balance, there are many advantages in the synergy between entrepreneurship and research, even though it is demanding and not for everyone.

**How** do you use your academic competences from AU as an entrepreneur?

As a researcher, I come with a very specialized academic insight, which has been an advantage in the biotech community, where more people are often generalists. But in fact, it goes just as much the other way around. My research ac-
tivities benefits a great deal from my entrepreneurial mindset. I do bring knowledge from biotech and the innovative community back to my research, where it supports our mindset to understand that here are the unmet needs for improving medical therapies and help patients. So the entrepreneurial experience of getting your hands dirty has really added a broader perspective to my research.

**Where** is the company today, and what are your dreams for the future?

Our dream is to develop a treatment that helps cancer patients and saves lives. We are in the preclinical settings but working hard to get to a stage where our drug can become ready for clinical testing – this goal is within the foreseeable future. Personally, I do not have the ambition of becoming a new Novo Nordisk. Right now, we focus on developing our drug, and then we see what comes next – you should always be open for opportunities within biotech. My aim is to show that we can be successful in developing something from a basic scientific discovery to something that can make a difference for people and be of benefit to society.

**What** is your best advice for researchers who are considering becoming entrepreneurs?

First of all, you need to consider why you are doing it – because you have to dedicate yourself 100% into the work. And you should not do it to become rich or famous. If you think you are going to run everything yourself, you shouldn’t do it either – you need to be aware that the skills you have obtained as an academic, do not necessarily make a great CEO. So find the right team of experienced people that can help transform the idea into a company. However, if you want to make a change for other people, and you get energy from pushing things forward, then jump into it. It is hard work, and therefore, it is important to be dedicated to the overall goal.
INVENTION DISCLOSURE & ASSESSMENT

This section will outline the essential aspects of the invention disclosure and the subsequent assessment process. It will touch upon subjects such as what an invention disclosure is and why you should submit one. In addition to this, the section will describe the assessment process in detail.

**What is an Invention Disclosure?**

An invention disclosure is a written description of your invention or development that is provided to the TTO by you. The invention disclosure should list all funding and collaborating sources of support and include all the information necessary to begin pursuing protection, marketing and commercialisation activities. This document will be treated as “university confidential”. Based on the invention disclosure, the TTO may generate a non-confidential description of your invention in order to assist in marketing of the technology.

Once potential partners have been identified, and confidentiality agreements have been signed, more detailed exchanges of information can be made.

**Why should I submit an Invention Disclosure?**

When you disclose your invention to the TTO, it starts a process that could lead to the commercialisation of your technology. Commercialisation is a great way for your invention to benefit society as a whole – your invention can thus create an impact on more than just the academic world. In addition to
this, a novel invention can benefit you financially, with a share of the net revenue.

Along with the opportunities outlined, you are obligated by Danish law to disclose any inventions you make during your employment at public research institutions.

**How do I know if my discovery is an invention?**

You are encouraged to submit an invention disclosure for all inventions and developments that you feel may have significant value as the solution to a problem. If you are in doubt, contact the TTO to discuss the invention and strategies for commercialisation.

**When should I complete an Invention Disclosure?**

You should complete an invention disclosure whenever you feel you have discovered something unique with possible commercial value. This should be done well before presenting the discovery through publications, poster sessions, conferences, press releases, or other communication. Once publicly disclosed (i.e., published or presented in any form), an invention may have none or restricted potential for patent protection. Be sure to inform the TTO of any imminent or prior presentation, lecture, poster, abstract, website description, research proposal, dissertation/master’s thesis, publication, or other public presentation that discloses any significant element of the invention.

**Should I disclose research tools?**

Yes, if your new tools would benefit other researchers and you are interested in providing them to those researchers and to other third parties. Typically, research tools are materials such as antibodies, vectors, plasmids, cell lines, mice, and other materials used as “tools” in the research process. Most research tools do not necessarily need to be protected by patents to be licensed to commercial third parties to generate revenue. If you have research tools that you believe to be valuable or wish to provide to others (including research collaborators), the TTO will work with you to develop the appropriate protection, licensing, and distribution strategy.
**How do I submit an Invention Disclosure?**

You can download a disclosure form and simple instructions from Au.dk/tto. New invention disclosures are assigned to a member of the TTO Business Development team shortly after they are received. If you have any questions, please contact us at tto@au.dk.

**Who is considered an inventor for the purposes of technology transfer?**

To determine who is an inventor, only a person's role in the conception stage is considered. Each person who makes an original and substantive contribution to the invention or essential elements of the invention will be considered an inventor. For more information on this, have a look at "Inventorship Guidelines" on Au.dk/tto.

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**2021 impact**

71 Invention disclosures  
17 New patent applications  
600+ Million DKK invested in spin outs founded at Aarhus University
ASSESSMENT OF AN INVENTION DISCLOSURE

How does the TTO assess Invention Disclosures?

Business developers and legal staff at the TTO examine each invention disclosure to review the novelty of the invention, protectability and marketability of potential products or services, potential legal concerns, along with the time and money required for further development. Furthermore, the growth potential of the relevant market, along with potential competition from other products/technologies, is analysed. This assessment may also consider whether the intellectual property can be the basis for a new spin-out. During the assessment, your business developer will work closely with an external patent attorney to ensure an extensive search through existing patents.

If the inventors believe that all IP should be licensed non-exclusively to all potential users for the public good, will the AU/CDR honour our request?

The TTO will work with you to develop the appropriate commercialisation strategy for the invention. Some technologies lend themselves to non-exclusive licensing (licensing to multiple third parties), while others will only reach the commercial marketplace, and therefore the public, if they are licensed on an exclusive basis. We will try to accommodate inventors’ commercialisation wishes, but the final decision will be made by the business developer from the TTO.

Is an invention ever assigned to an Inventor?

If the TTO decides not to pursue patent protection and chooses not to actively market the invention, AU/CDR may transfer ownership to the inventor(s). If the inventor chooses to commercialise the invention, and this results in net income to the inventor, the inventor shall pay a reasonable remuneration to AU/CDR in return (Read more here).
This section will outline the essential aspects of intellectual property and research considerations. It will touch upon subjects such as what a patent is, and the process of getting one. It is important to emphasise that this is an introduction - the patent process is very individual - you should always reach out to us if you specific questions.

**What** is “intellectual property”?  

Intellectual property is an invention or material that may be protected using a patent, utility model, trademark, by contract or under copyright laws.

**Who** owns what I create?  

As a general rule, AU/CDR owns inventions made by its employees while acting within the scope of their employment or using more than incidental AU/CDR resources. In some cases, the terms of co-financed or commissioned research may impact ownership. When in doubt, it is best to reach out to the TTO for advice.

**What** is AU’s and CDR’s policy on ownership of inventions?  

The policy at Aarhus University and Central Denmark Region follows the national legislation, which entails that The Act on Inventions of 2009 sets the policies for ownership of inventions. As stated previously, co-financed or commissioned research can alter the rules of ownership.

**Who** owns the rights to discoveries made while I am consul-
The ownership of inventions made while consulting for an outside company depends on the terms of your consulting contract. It is important to clearly define the scope of work within consulting contracts to minimise any issues with ownership of potential inventions. If you have questions, the TTO is available for advice.

Should I list visiting scientists or scientists at other institutions/Companies on my invention disclosure?

All persons that may have contributed to the ideas leading to a discovery should be mentioned in your disclosure, even if they are not AU/CDR employees. The TTO will determine the rights of such persons and institutions/companies. It is prudent to discuss with the TTO all working relationships (preferably before they begin) to understand the implications for any subsequent inventions.

Can a student contribute to an invention?

Yes, some students work on inventions at AU under a wide variety of circumstances. The TTO promotes student entrepreneurship, and students can be named as Inventors. Typically, a student will own his or her rights to an invention unless the invention was created by a student in a capacity as an AU/CDR employee, or where the student used more than incidental resources from the institution.
Why did you choose to start RadiSurf?

I have always had an urge to start and see things grow – I tried starting a small company in eighth grade, which did not pan out well, but I kept the interest. When I was employed at Aarhus University, an opportunity to start a company based on our research presented itself. The project was ready to be commercialised, so I took the opportunity and founded RadiSurf together with my supervisors. It made sense to work in a company where I could use all the competences I had spent years learning.

What sets you apart from your competitors?

There are two main aspects that sets us apart from competitors – we have based our products on a unique technology and we are able to scale-up the production to an industrial scale, which is a key if you should commercialize new technology.

The technology is unique because it is based on a completely new way of thinking interfaces between different surface materials. Using polymer brushes, we are able to control the surface properties of various materials as well.
as creating seamless assemblies between different material-types. We can connect materials such as metal and plastic, which has shown to be difficult using traditional adhesives in many cases. The assemblies that we can create are also very durable compared to traditional methods.

The technological advantage is important, but what really sets us apart is our ability to create scalable solutions for industry. We have only been able to develop our solution due to our excellent team, which consists of the leading experts within this field. Even more importantly, we have been able to keep on all team members that have joined us along the journey – this means that we are keeping the important knowledge internally in the company.

**How was the transition from academia to industry?**

When I took my PhD, the learning curve was steep – but it got 10 times steeper when I founded the company. The main reason is that you cannot open a book and find the answer you are looking for. In RadiSurf we are working with a unique technology on a specialized market with a distinctive business model. No one has done what we are doing, so there is nowhere to seek definite advice. When looking towards traditional guidance for start-ups, which is most often based on IT-startups, it is very hard to relate it to what we are doing in RadiSurf – which makes traditional start-up guidance almost useless.

**What have been the largest challenges?**

We have met several challenges along the way. As mentioned before, the main challenge has been the lack of people who have tried the same. This relates to another big challenge, which has been to sort bad advice from good advice – this has been tough without a relevant reference frame.

Another large challenge we met early on was difficulties with scaling-up. We found out that the technology we based the company on, was not suitable for industrial scale. It was a major setback, and a big part of the chemistry had to be re-developed from the ground up.
A final – but constant – challenge has been the lack of money. A major challenge in Denmark has been the lack of risk-taking investors willing to look further than IT- or medico projects.

What role has soft funding played in the development of the company?

The role of soft funding has been crucial for the development of RadiSurf, especially in the beginning. Denmark is in a relatively good position compared to other countries when looking at the different options for soft funding. Although the funding budgets could be much larger, especially in regards of programs aimed towards start-ups. A major challenge – especially in the beginning – has been the amount of time needed to write the applications.

How was the collaboration with the TTO?

The TTO has a dual role – they are trying to support you, while still being a counterpart, when negotiating terms for commercializing the IP developed at the University. However, overall, the TTO has been very helpful – especially the long-term collaboration has been great. Every time we have needed adjustments to our agreements etc., the TTO have been ready with short notice and flexible on terms. We can use each other’s competences and network, and the beneficial collaboration is mutual.

In the spring of 2021 the company was sold – what does that mean for the future of the company?

The sale means everything. It makes it possible to scale up the company and reach a new league. The main benefit of the sale and the subsequent injection of capital is that we free up the resources that was previously used to attract new funding and investments.

We can at the same time shift our main focus from Research and Development to production – more specifically we are moving from a 170 m² office to a new 2000+ m² location, as well as increasing the number of employees from 11 to more than 25 during 2022. Furthermore, it makes it possible to expand our activities to the USA with the opening of a new location, also in 2022.
Finally, our new international investors are bringing a completely new mindset. It is important to work fast – also if it means that we make more mistakes. Every time we make a mistake, we learn something new. The benefit of working faster is the significantly reduced ready-to-market time – meaning that we can start creating revenue at an earlier stage. It is expensive in the short-term but beneficial in the long-term.

**What** are your best advices to other researchers with a dream of becoming an entrepreneur?

For one thing, you may not know a lot about running a company and you are going to make a lot of mistakes – but believe in your own ability to make decisions that moves you forward.

Another key thing is the importance of speaking with your future customers early on – get an understanding of their needs and pain-points as early as possible, even before creating your product. It is important to increase your market-understanding while reducing uncertainty and guessing.
**What is a patent?**

A patent gives the holder the right to exclude others from making, using, selling, offering to sell, and importing the patented invention. A patent does not necessarily provide the holder any affirmative right to practice a technology since it may fall under a broader patent owned by others. Instead, it provides the right to exclude others from practicing the invention.

**What type of subject matter can be patented?**

Patentable subject matter includes processes, machines, compositions of matter, and methods. There are four main criteria for patenting: The invention should be a technical solution to a technical problem; the invention should be novel; the invention should be an improvement over any existing products; and finally, the invention needs to have a practical application. Your business developer will work with you and an external patent attorney to ensure that these criteria are met.

**Can someone patent a naturally occurring substance?**

Generally, no. A natural substance that has never before been isolated or known may be patentable in some instances, but only in its isolated form (since the isolated form had never been known before). A variation of a naturally occurring substance may be patentable if an inventor is able to demonstrate modifications that offer substantial advantages in using the variant.

**What is the Danish Patent and Trademark Office?**

The Danish Patent and Trademark Office is an agency organised under the Ministry of Industry, Business and Financial Affairs that administers patents on behalf of the government. The agency employs patent examiners skilled in all
technical fields to appraise patent applications.

**What** is the definition of an inventor on a patent, and who determines this?

An inventor is a person who makes an original and substantive contribution to the conception of the ideas in the patent claims of a patent application. An employer or person who only furnishes money to build, test, or practice an invention is not an inventor. Inventorship is a legal issue and may require an intricate legal determination by the patent attorney prosecuting the application. Have a look at "Inventorship Guidelines" on Au.dk/ tto for more information.

**Who** is responsible for patenting?

The TTO contracts with outside patent attorneys for patent prosecution and maintenance, thus assuring access to patent specialists in diverse technology areas. Inventors work with the patent attorneys in drafting the patent applications and responses to patent offices in countries where the patent is pending.

**What** is the patenting process?

Patent applications are generally drafted by an outside patent attorney. The patent attorney will ask you to review an application before it is filed and will also ask you questions about inventorship of the application claims. When an application is filed, the patent attorney will ask the inventor(s) to sign an Inventor's declaration and an Assignment under which the inventor(s) assigns his or her rights in the patent to AU/ CDR. This is part of normal patenting procedures, and signing the document does not mean that you relinquish the right to potentially receive remuneration.

A search report is sent from the patent office 6-16 months from the first filing depending on the patenting strategy. The report lists all prior art documents found by the examiner and includes them as copies. More often than not, the examiner objects to the application because either certain formalities need to be cleared up, or the claims are not patentable over the "prior art" (anything that workers in the field have made or publicly disclosed in the past).
The patent attorney files a written response by amending the claims or points out why the examiner’s position is incorrect. This procedure is referred to as patent prosecution, and it may take more than one correspondence between the examiner and the patent attorney. During the prosecution process, input from the inventor(s) is often needed to confirm the patent attorney’s understanding of the technical aspects of the invention and/or prior art cited against the application.

Your application is published 18 months after the filing date. Your invention will then appear in databases accessible to other people, and it will act as prior art against any future patent applications.

Is there such a thing as an international patent?

No, but an international agreement known as the Patent Cooperation Treaty (PCT) provides a streamlined filing procedure for most industrialised nations. A PCT application is generally filed one year after the priority application has been submitted. The PCT application must later be filed in the national patent office of any country in which the applicant wishes to seek patent protection, generally within 30 months of the earliest claimed filing date.

What is the timeline of the patenting process and resulting protection?

The patenting process takes years, and especially inventors in the biotech fields should plan on a long waiting period. Once a patent is issued, it is enforceable for 20 years from the initial filing of the application that resulted in the patent, assuming the patent office’s mandated maintenance fees are paid.

Why does AU/CDR protect only some intellectual property through patenting?

Patent protection is often a requirement of a potential commercial partner (licensee) because it can protect the commercial partner’s often sizeable investment required to bring the technology to market. Due to the expense and the length of time required to obtain a patent, patent applications are not possible for all AU/CDR intellectual property. We carefully review the commercial potential for an invention before investing in the patent.
process. However, because the need for commencing a patent filing usually precedes finding a licensee, we look for creative and cost-effective ways to seek early protection for as many promising inventions as possible.

**Who** decides what gets protected?

The assigned business developer along with the external patent attorney consider relevant factors in making recommendations about filing patent applications. Based on this recommendation, the head of the TTO ultimately makes the final decision whether to file a patent application or seek another form of protection.

**What** does it cost to file for and obtain a patent?

The cost of filing a patent can vary greatly depending on the number and complexity of the claims as well as the geographic coverage of the patent. To obtain an issued patent may require additional costs for patent prosecution. Also, once a patent is issued, certain government maintenance fees are required to keep the patent alive.

**What** if I created the invention with someone from another institution or company?

If you created the invention under a co-financed or commissioned research agreement with a company, the TTO would need to review that contract to determine ownership, other associated rights, and appropriate next steps. Should the technology be jointly owned with another academic institution, the business developer will usually enter into an “inter-institutional” agreement that provides for one of the institutions to take the lead in protecting and licensing the invention, sharing of expenses associated with the patenting process, and allocating any licensing revenues. If the technology is jointly owned with a company, the business developer will work with the company to determine the appropriate patenting and licensing strategy.

>>
Will AU/CDR initiate or continue patenting activity without an identified licensee?

Often the TTO accepts the risk of filing a patent application before a licensee has been identified. After the rights of AU/CDR have been licensed to a licensee, the licensee generally pays the patenting expenses. At times we must decline further patent prosecution after a reasonable period (often a year or two) of attempting to identify a licensee (or if it is determined that we cannot obtain reasonable patent coverage).

What is a copyright, and how is it useful?

Copyright is a form of protection provided to the authors of “original works of authorship.” This includes literary, dramatic, musical, artistic, and certain other intellectual works as well as computer software. This protection is available to both published and unpublished works. Copyright protection is automatically secured when a work is fixed into a tangible medium such as a book, software code, video, etc.
**RESEARCH CONSIDERATIONS**

**Will** I be able to publish the results of my research and still protect the commercial value of my intellectual property?

Yes, but since patent rights are affected by these activities, it is best to submit an invention disclosure (see page 18) well before communicating or disclosing your invention to people outside AU/CDR. Once publicly disclosed (published or presented in any written or oral form), an invention will have restricted or no potential for patent protection in most territories around the world. Be sure to inform the TTO of any upcoming or historic disclosure to the public domain including presentations, publications, posters, abstracts, exams, thesis, or research proposal submission.

**May** I use material or intellectual property from others in my research?

Yes, if you have the consent of the owner. It is important to carefully document the date and conditions of use so that we can determine if it influences the ownership and rights of your subsequent research results. If you wish to obtain materials from outside collaborators, a Material Transfer Agreement (MTA) should be completed. The TTO legal staff can help you with this matter.
Will I be able to share materials, research tools, or intellectual property with others to further their research?

Yes, but please contact the TTO legal staff as it is important to document items that are to be shared with others and the conditions of use. If you wish to send materials to an outside collaborator, a Material Transfer Agreement (MTA) should be completed for this purpose. It may also be necessary to have a Confidentiality Agreement completed to protect your research results or intellectual property. The TTO legal staff can help you with this matter.

What rights do an external research sponsor have to any discoveries associated with my research?

The Agreement made between the parties should specify the Intellectual Property (IP) rights of the external party. AU/CDR generally retains ownership of the patent rights and other intellectual property resulting from co-financed or commissioned research. However, the external party may have the right to obtain a license for the defined and expected outcomes of the research. Often, collaboration agreements allow the external party a limited time to negotiate a license for any patent or intellectual property rights developed as the result of the research. Even so, the external party generally will not have contractual rights to discoveries that are clearly outside of the scope of the research. Therefore, it is important to define the scope of work within a research agreement. If you have questions about co-financed or commissioned research, please contact the TTO.
COMMERCIALISATION OF TECHNOLOGY

This section will outline the essential aspects of commercialisation and describe the process. It will touch upon subjects, such as how the TTO can help you, what commercialisation strategies to consider, and the different types of agreements you need to be familiar with.

What are the typical steps in a commercialisation process?

Commercialisation is understood as the process by which new inventions are commercialised and brought to market for the benefit of society as a whole. At AU/CDR, inventions are usually at a very early stage - this entails, that the TTO does not have the ressources to bring novel inventions directly to market. Instead, the main task of the TTO is to find an external partner, who can continue development and bring the final product to market.

A patent application is often filed before any marketing of the invention takes place, but in some cases the market need is investigated together with the inventors to validate any market assumptions before a patent application is filed. After the market need has been assessed a period of maturing or validation of the invention will often take place prior to or simultaneously with any marketing. Once a licensee has been located through market research and analysis, or a spin-out has been founded, the TTO negotiates an agreement for the use of the invention and subsequently monitors the agreement on behalf of the University or the Central Denmark Region.

What is the right strategy: Existing company or spin-out company?

The commercialisation path can generally go in two directions. The first option is to create a spin-out company, while the second option would be to either license or sell
the technology to an existing company. A spin-out is a new start-up company that licenses the technology from AU/CDR and is founded with the sole purpose of commercialising the acquired technology. A spin-out most often requires a large degree of involvement from the researcher(s). This means that a researcher wanting to spin out needs to be motivated, spend time, and learn new skills beside their academic knowledge – such as business management, marketing and an understanding for legal and regulatory considerations.

The other option is to license or sell the technology to an existing company. This is often the preferred path if the technology is at a more mature stage. When aiming to license or sell the technology the researcher will usually be less involved in the process – primarily supplying guidance or consulting to the licensee. Your business developer will try to accommodate your wishes and aspirations when deciding whether to spin out or to license/sell.

What is my role during commercialisation?

Your role can vary greatly depending on the chosen strategy: spin-out versus existing company. If a spin-out is chosen your role will more than often be very significant. If, on the other hand, a licensing strategy is chosen, your role can be a lot more flexible depending on your wishes and interest. Your assistance in locating possible licensees would be more than appreciated, and some form of guidance or consulting would often be needed once the license is effective.

Need for Proof of Concept?

Sometimes a need for Proof of Concept (PoC) will arise before the technology can be commercialised. There are two primary strategies. A short-term strategy is to continue developing the technology using traditional university research funding. The long-term strategy is to apply for university innovation funding such as the Innoexplorer Grant.
This grant is focused on bringing research projects closer to the market, and the end goal is to establish a spin out company that can continue the development process. You can find guidance regarding innovation funding on our website tto.au.dk.

**What** happens after commercialisation?

Most licensees continue to develop an invention to enhance the technology, reduce risk, prove reliability, and satisfy the market requirements for adoption by customers. This can involve additional testing, prototyping for manufacturability, durability and integrity, and further development to improve performance and other characteristics. Documentation for training, installation and marketing is often created during this phase. Benchmarking tests are often required to demonstrate the product advantages and to position the product in the market. The tasks will often be the same regardless of the technology is licensed by a spin-out or an existing company.

**What** revenues are generated for AU/CDR if commercialisation is successful? If unsuccessful?

Licenses can include licensing fees, milestone fees, royalties, equity or a combination of these. Licensing fees are usually on an annual basis, while milestones fees are based on significant improvements in the state of the invention, such as the first sale or the beginning of a clinical trial. Royalties on the eventual sales of the licensed products can also generate revenues, although this can take years to occur. Equity, if included in a license, can also yield returns, but only if a successful equity liquidation event (public equity offering or a sale of the company) occurs. In addition it must be mentioned that most licenses do not yield substantial revenues – however, the rewards of an invention reaching the market are often more significant than the financial considerations alone. At the TTO we determine the terms and financial rates for licenses using a range of different methods including benchmarking towards similar agreements, analysing expected revenue and direct negotiation with the licensee.
CREATING A SPIN-OUT

What is a spin-out and why choose to create one?

A spin-out is a new business entity formed to commercialise one or more related intellectual properties. Forming a spin-out is an alternative to licensing the invention to an existing company. In almost all cases the inventor(s) will be the founder(s) of the spin-out, meaning that the people working on the final product will be both very dedicated and motivated. In addition to this, the attention and focus of a spin-out company can in some instances beat the broader competences of an established company.

Where to access funding?

A great way to fund the transition from research project to commercial project is the Innoexplorer Grant – a grant offered by Innovation Fund Denmark. The grant can be up to 1.5 mio DKK and should be spend to de-risk the project, this could be done by hiring external consultants to assist with areas where you are lacking knowledge; paying the salary of yourself or team members; or generate new data to support your scientific claims. For more information on the grant and the conditions for applying, please visit Au.dk/tto or Innovationsfonden.dk. In addition to this, BioInnovation Institute and The Novo Nordisk Foundation are two other places where you can apply for funding for your project. International seed investors is yet another opportunity. Your business developer can help you choose the most appropriate funding opportunity or locate additional funding opportunities.

How does the TTO help me?

If a new spin-out is chosen as the preferred commercialisation path, the TTO assists you and the other founders in meeting investors, consultants, and entrepreneurs to help you in founding the company. In addition to this we can assist you with putting together a team, doing market analysis, locating funding options, and more.
How to gain access to the technology?

When the spin-out is established the TTO will negotiate with a representative of the company to grant a license to technology. It is wise for inventors to have agreements regarding their roles with the start-up reviewed by their own counsel to ensure that all personal ramifications – including taxation and liabilities – are clearly understood. In addition, an option agreement can be signed before the final license. This gives the licensee a period (usually 6-12 months) to assess the market need before signing a full license.

Who decides whether to form a spin-out?

The choice to establish a new company for commercialising intellectual property is based on a joint discussion between the TTO and the inventors, with the TTO making the final decision.

How do I create a team?

Great scientific discoveries will always be the foundation for a successful spin-out, but a versatile team with broad competences is also necessary. A spin-out team could need access to competences such as business development, regulatory affairs, toxicology, certification, clinical trial design or legal assistance. This can be achieved by employing team members with the needed skills, but consultancies are also a viable way to go - especially in the beginning when funds are scarce and the need for specialised competences is limited. Consultancy services can be funded using innovation grants such as the Innoexplorer Grant from Innovation Fund Denmark.

What do I gain from creating a spin-out?

A spin-out is a great way to create an impact on the society around you and at the same time it can be financially beneficial for you personally.
Spin-out

VPCIR biosciences

What is the story behind VPCIR?

Researchers from Aarhus University as well as University of Hong Kong have been studying DNA-modifying enzymes for a long time. From this research, an invention was conceived in 2018. It was based on the discovery, that inside each type of bacteria a certain kind of DNA-modifying enzyme is present. The specific enzymes acts as fingerprints, so by determining the enzyme pattern it is possible to determine the type of bacteria – no one had thought about this before.

The next step in the process was to develop a kit, so others could use the technique outside of the University. To do this, a license deal was entered into with the Universities, and money was raised from Innovation Fund Denmark, The Novo Nordisk Foundation, private Business Angels as well as Vækstfonden. The first product based on this invention will be launched during 2022. >>
What sets you apart from competitors?

There are several benefits of using VPCIR’s technology compared to conventional testing. It requires no large equipment, which makes it cheap and easy to use, while still being both fast and sensitive. It can be used to trace bacteria such as Listeria, Salmonella or E. coli at least as fast as PCR. When using the product, the customers get a small glass plate, which can hold 36 samples at once. At the moment, lab equipment is needed to analyze the samples, but at a later development stage, we expect that it will be possible to analyze the samples using only a mobile phone.

Are there any other use cases for the invention?

During the Corona pandemic, we have experienced delivery issues with some of the ingredients needed for production. Even if we did receive the ingredients, the quality varied greatly between deliveries. It made us realize that we had the capacity to produce some of the enzymes in-house at a lower cost and higher quality. We ended up making large quantities of enzymes, and thought that we might as well sell them. These enzymes are the first commercially available product from VPCIR biosciences. During the development process for our original product, we discovered that our solution has potential for use cases outside the food area – at a later stage we are expecting to use the same basic technology to diagnose HIV or Tuberculosis.

What have been the largest challenges?

Money is always a big challenge. A constant worry is how to source funds for the next phase. At this moment, we are actively seeking investors who can help us scale up the company and reach to the next level. We are at a stage where we are ready to expand – we just need the investment. Another major challenge has been corona – as mentioned, we have experienced many delivery issues and sub-prime quality of ingredients.

What role has soft funding played in the development?

You will have a hard time as an entrepreneur with a university-based spinout if you cannot
How does the TTO market my invention?

If licensing to an existing company is deemed the optimal way to go, your business developer will start to market the technology, using different sources and strategies to identify potential licensees. Sometimes existing relationships of the inventors, the TTO, and other researchers are useful in marketing an invention – at other times potential licensees will be found using extensive market research. In addition to this, we use our website, leverage conferences and industry events, and make direct contacts to potential companies.

What are your best advices to other researchers with a dream of becoming an entrepreneur?

The best ideas often originate from senior researchers, but it is very seldom that they are ready to leave the academic career, they have a spent a lifetime building. This is why it is important to have experienced individuals on the team, who has a commercial mindset, and is willing to take on risk. Another advice is to be open-minded – the final product will often be vastly different from the basic idea. It is important to keep an eye open for the opportunities that present themselves during the development process.
**How are most licensees found?**

Many licensees are already known to the inventors - that is why your research and consulting relationships can be very important for successful commercialisation. Licensees are also identified through existing relationships of the TTO staff, since our licensees often license more than one technology from the University. We attempt to broaden these relationships through contacts obtained from market research, industry events and the cultivation of existing licensing relationships.

One of the largest industry events is organised by the Danish TTO’s in collaboration - this is the annual Nordic Innovation Fair. The event offers a platform for inventors, companies and investors to meet each other and plan partnerships and investments.

**How can I assist in marketing my invention?**

Your active involvement can dramatically improve the chances of matching an invention to an outside company. Your research and consulting relationships are often helpful in both identifying potential licensees and specific people of interest within companies.

Once interested companies are identified, the inventor is the best person to describe the details of the invention and its technical advantages. The most successful technology transfer results are obtained when the inventor and the business developer work together as a team to market and sell the technology.

**How long does it take to find a potential licensee?**

It can take months and sometimes years to locate a potential licensee, depending on the attractiveness of the invention, its stage of development, competing technologies, and the size and intensity of the market. Most inventions from public research institutions tend to be in the early stage of the development cycle and thus require substantial commercialisation investments, sometimes making it difficult to attract a licensee.
LICENSE AND ASSIGNMENT / SALE AGREEMENTS

What is a license?

A license is a permission that the owner or controller of intellectual property grants to another party, usually under a license agreement.

What is a license agreement?

License agreements describe the rights and responsibilities related to the use and exploitation of intellectual property developed at the University or Central Denmark Region. University license agreements usually stipulate that the licensee should diligently seek to bring the intellectual property into commercial use for the public good and provide a reasonable return to the University.

What is an assignment / sale agreement?

In many ways an assignment agreement functions in the same way as a license agreement. The main difference is that under a license agreement the University or Central Denmark Region will retain ownership of the technology, while under an assignment agreement the ownership will be assigned to the buyer.

How is a company chosen to be a licensee?

A licensee is chosen based on its ability to commercialise the technology for the benefit of the public. Sometimes an established company with experience in similar technologies and markets is the best choice. In other cases, the focus and intensity of a spin-out is a better option. It is rare to have multiple potential licensees bidding on an invention.
What can I expect to gain if my IP is licensed?

According to Danish law, a share of any financial return from a license is provided to the inventor(s). In addition to this, most inventors enjoy the satisfaction of knowing that their inventions are being deployed for the benefit of the public. New and enhanced relationships with businesses is another outcome that can augment one’s teaching, research and consulting. In some cases, additional sponsored research may result from the license.

What is the relationship between an inventor and a licensee, and how much of my time will it require?

Many licensees require the active assistance of the inventor to facilitate their commercialisation efforts, at least in the early stages of development. This can range from infrequent, informal contacts to a more formal consulting relationship. Working with a new spin-out will require substantially more time, depending on your role in or with the company and your continuing role within the University. Your participation with a spin-out must be approved by your Head of Department.

What other types of agreements and considerations apply to technology transfer?

• **Option Agreements**, or option clauses are often provided in a co-financed or commissioned research agreement to corporate sponsors. Option Agreements are most often entered into with third parties wishing to evaluate the technology, prior to entering into a full license agreement, and should thus be seen as an "initial step" towards a final agreement.

• **Non-Disclosure Agreements (NDA’s)** or Confidential Disclosure Agreements (CDA’s) are often used to protect the confidentiality of an invention during evaluation by potential licensees. NDA’s or CDA’s can also be used, if inclusion of confidential material is required for a thesis defense or any other closed-environment presentation with external representatives. The TTO legals will be able to draft these agreements for you, if needed.

• **Material Transfer Agreements (MTA’s)**, used for incoming and outgoing materials, are administe-
red by the TTO. These agreements describe the terms under which AU/CDR researchers and outside researchers may share materials, typically for research or evaluation purposes. Intellectual property rights can be endangered if materials are used without a proper MTA.

• **Co-financed or commissioned research agreements** describe the terms under which sponsors provide research support to the University (Read more here).

**How** are license revenues distributed?

The TTO is responsible for managing the expenses and revenues associated with technology agreements. According to AU remuneration policy, revenues from license fees, royalties and equity – minus any unreimbursed patenting expenses – are shared between the University, the department and the inventor(s), with one-third for each. The remuneration policy for Central Denmark Region uses the same rules for calculation, with the only difference being the way the revenue is shared – one-third for the inventor(s) and two-thirds for the institution.

**What** are the tax implications of any revenues I receive from the University?

License revenues are typically taxed as general income, but you should reach out to an external advisor for more specific advice. For free and unbiased guidance on this and other relevant topics when starting a company you can reach out to STARTVÆKST - a free offer for soon-to-be founders of start-ups.

**How** are inventor revenues distributed if there are multiple inventors and/or multiple inventions in a license?

While there may be some variation in the procedure, typically when a license agreement results in net income, the revenue will be distributed according to the contribution of each inventor. The contribution of each inventor has been determined during the assessment period, and this will typically be used to calculate the share for each inventor (e.g. three inventors could share the revenue 40-40-20, if two inventors have contributed more than the third).
## The Largest Investments in Spinouts from Aarhus University*

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<th>Company</th>
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<td>NMD Pharma</td>
<td>Novo Holdings, Lundbeckfonden, Emerge, Roche Venture, Inkef Capital</td>
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<tr>
<td>Muna Therapeutics</td>
<td>Novo Holdings, Sofinnova Partners, Droia Ventures, LSP Dementia Fund, And more</td>
<td>DKK 450 million</td>
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<td>Draupnir Bio</td>
<td>Novo Seeds, Gilde Healthcare, Inkef Capital, HT Gründerfonds</td>
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<td>STipe Therapeutics</td>
<td>Novo Seeds, Arix Bioscience, Sunstone Capital, Wellington Partners</td>
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<td>AGROINTELLI</td>
<td>Nordic Alpha Partners</td>
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<td>RADISURF</td>
<td>KCK Ltd</td>
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<td>Cercare Medical</td>
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<td>iSD Immunotech</td>
<td>Novo Seeds</td>
<td>DKK 35+ million</td>
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