



Editorial

Professor Arto Urtti —A northern light from the land of the midnight sun



Professor Arto Urtti had his 60th birthday in December 2016. He is currently the Professor of Biopharmaceutics at the University of Helsinki and University of Eastern Finland (UEF). He was the editor-in-chief of European Journal of Pharmaceutical Sciences (EJPS) in 2001–2011, and this special issue of EJPS is dedicated to Arto in honour of his 60th birthday. The celebrations include a scientific conference entitled “30 Years of Drug Delivery Research” in Kuopio, Finland, on June 12–13, 2017. It is our great pleasure to give a short summary of his career in this editorial.



After his high school years in Jyväskylä, central Finland, Arto was pondering whether to choose a career in history or pharmacy. Based on his interest in biology he chose pharmacy and entered the University of Kuopio (currently UEF, Kuopio Campus) in autumn 1975. That was the third functional year of this new university and the total numbers of pharmacy students and all students were only about 50 and 600, respectively. The main buildings of the university were still under construction, and the lectures and laboratory exercises were arranged in multiple temporary locations. The “eyewitnesses” to Arto's study years and long-term colleagues tell their view in Story 1.

Despite the unfinished environment at the university, the spirit was forward looking, and some teachers inspired Arto, for example Ewen MacDonald, Jouko Tuomisto and Hannu Turakka. Arto carried out Master's Degree having both pharmacology and pharmaceutics as major subjects.

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He became interested in research career during the third year of studies and was recruited as Ph.D. student by pharmaceutics professor Markku Juslin in 1981. Arto's topic was ocular delivery of pilocarpine and he got his Ph.D. degree in 1986. One of Arto's supervisors was Lotta Salminen who describes her collaboration with Arto starting from Day 1 in Story 2.

During post-graduate studies Arto became interested on the main topics of his research career, such as ocular pharmacokinetics and modeling and drug delivery systems. Many long-term friendships started during that time. International orientation started when Arto traveled to his first scientific conference in Copenhagen using boats and trains.

Arto worked as a postdoctoral fellow at the University of Kansas, Department of Pharmaceutical Chemistry, under host by Professor Arnold Repta in 1986–1987. Professors of Kansas were models for Arto in building research program and group. Later, several members of Arto's research group have made post doc visits to the same department.

After his return to Kuopio University in 1987 Arto started to build his own research group as the Assistant and Associate Professor of Pharmaceutical Technology (1987–1995) and Professor of Biopharmaceutics (1996–2005). The first Ph.D. students supervised by Arto were Ulla Finne, Kristiina and Tomi Järvinen, and Jouni Hirvonen. Their topics included ocular pharmacokinetics of timolol, prodrugs of pilocarpine, and enhancers for transdermal administration. Arto was (and is) an inspiring supervisor and role model, since three of these students later obtained positions as professors. In 1990, Arto was hosted at the University of Wisconsin by the legendary ocular pharmacokineticist, late Professor Joseph R. Robinson.

In early 1990's Arto became interested in non-viral gene delivery and drug targeting. Arto invited Professor Francis Szoka from University of California San Francisco (UCSF) to visit Kuopio. Frank was even better “salesman” and managed to grab Arto and his family to UCSF (Story 3). Arto spent his UCSF sabbatical at departments of pharmacy (host Frank Szoka) and ophthalmology (hosted by late Professor Jon Polansky) working on ocular gene delivery with nanoparticles. In 2000, Frank was nominated as Honoris Causa at UEF by Arto's proposal. In 2000, Arto moved with his family to UCSF for the second time, now hosted by Professor Wolfgang Sadee, working on drug transporters (Story 3). Pharmaceutical nanotechnology and transporter research are still Arto's primary research fields, e.g., light activated or targeted liposomes.

In 2005, Arto started as the director of Centre of Drug Research, University of Helsinki, a research centre with temporary funding. After highly positive external evaluations, University of Helsinki provided permanent funding for this centre. Arto actively developed the infrastructures in Helsinki by launching preclinical SPECT/CT real time imaging laboratory. This laboratory and bioactivity screening facility were also developed as national infrastructures within Biocenter Finland. Recently, bioactivity screening facility is being extended to European level (ESFRI) infrastructure, EU OpenScreen, that benefits scientific community broadly.

In Helsinki, Arto started a new research field in his group on interactions of biomaterials with cells. This is utilized in drug testing and cell encapsulation. Based on all his achievements Arto received the Millennium Distinction Award in 2009. He successfully proposed with his colleagues Millennium Award for Robert Langer who works in the field of drug delivery and biomaterials, and Honoris Causa at University of Helsinki for Jindrich Kopecek. In 2013 Arto started as the Professor of Biopharmaceutics at University of Helsinki.

In 2015, Arto obtained a position as the Professor of Biopharmaceutics at UEF, Kuopio Campus, while keeping his position in Helsinki. This was a move back to Arto's roots and he has concentrated to work with his “first love”: ocular drug delivery. Arto's group in Kuopio is expanding constantly, e.g., international students from Marie Skłodowska-Curie network “OcuTher” will start their Ph.D. studies in summer 2017.

Arto has generously contributed to many national and international scientific funding organizations as a grant reviewer, evaluator on academic promotions, reviewer of scientific manuscripts, journal editor and he has organized three international meetings. During the years, he has consulted several pharmaceutical companies. It is clear that his opinion is highly valued by the research community.

From the early phases of his career Arto has been energetically promoting the education in pharmaceutical sciences at all levels. In addition to being a very productive supervisor of M. Pharm. and Ph.D. students he has started the national graduate school in pharmaceutical sciences. Currently, he is heading in Helsinki a research line for undergraduate pharmacy students aiming to attract and motivate young students to the research career.

Arto is a very positive and friendly person with a gentle sense of humor. His relaxed presence creates a cosy and informal atmosphere. He is always polite and humble in behavior and does not make an issue of himself. He is an entertaining companion in off-duty events. When leading his multiple projects he stays amazingly peaceful even in very busy moments. There are no dead-ends for Arto. He finds a way to attack the scientific problem from a different angle. He is always ready to talk science, but he also takes care of the overall well-being of his students, colleagues and friends.

This special issue is based on the work of Arto's friends and colleagues. The topics and articles of this issue and related symposium reflect Arto's career and contributions in biopharmaceutics for over 30 years.

We all have had the pleasure to collaborate with Arto and we wish him good luck in the future!

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Story 1 by Arto's fellow students and long-term colleagues and friends

We have known Arto as a fellow student, colleague and friend since mid-1970s. Arto started his pharmacy studies together with Petteri in 1975 when the University of Kuopio was still a “baby”, just three years old. We students felt that we were the true pioneers or almost like “guinea pigs”. The personnel at the Faculty of Pharmacy were learning to educate whereas we were learning to study.

During the study years, it occasionally seemed that we were studying life more than pharmacy. Music as well as deliberation on deep values have always been close to Arto's heart. We used to listen to music, dance and dwell on the purpose of life until the early hours.

Nevertheless, we also learned to study. We realised that the pedagogical skills of many of our university teachers were modest. Therefore, we spent time elsewhere and preferred to study intensively and independently for the exams.

During the last two years of our pharmacy studies we became interested in research. Arto also lost his desire to own a pharmacy store. Very few

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