

Collaboration Update

# Petrov Institute: Working together to lead personalised cancer research in Russia

“ *By leveraging our institute’s unique infrastructure and AstraZeneca’s expertise and capabilities, we hope our collaboration will help identify innovative, new approaches to treating cancer, which will ultimately result in more patient lives being saved.* ”

Professor Evgeny Imyanitov,  
Petrov Institute’s head of research  
for tumour growth biology

**AstraZeneca and the N.N. Petrov Institute of Oncology, one of Russia’s leading cancer research institutions, established a ground-breaking collaboration in 2013 – the first of its kind between a global pharmaceutical company and a Russian research centre.**

The aim is to assess various genes and other biomarkers within the Russian population by exploring potentially drug-sensitising gene mutations in a number of tumour types. The collaboration focuses on identification of novel tumour types harbouring potential drug-sensitising mutations in EGFR (HER1/ERBB1) and RET genes and potentially in HER2 (ERBB2), HER3 (ERBB3), HER4 (ERBB4), BRCA and other genes. This can provide key information for AstraZeneca’s oncology drugs and candidates such as gefinitib (EGFR), vandetanib (RET), olaparib (BRCA1, BRCA2 and others) and experimental TKI inhibitors.

Working collaboratively, we aim to build our understanding of the role that these genetic mutations play in the growth and spread of certain types of cancer and uncover novel therapies, improvements in disease management and innovative approaches to personalised healthcare.

## Collaboration in practice

Petrov Institute scientists in St. Petersburg work in close collaboration with oncology teams from AstraZeneca’s IMED Biotech Unit in the UK and US, bringing complementary and often unique skills and experience.

Dr. Imyanitov has extensive expertise as a leading translational medicine researcher. He was one of the first in Russia and Eastern Europe to establish Epidermal Growth Factor Receptor (EGFR) testing for patients with non-small cell lung cancer. The Petrov Institute has a strong scientific heritage and is home to one of Europe’s largest tumour archives with more than one million samples collected from over 270,000 patients. Data generated from this library may provide directions towards better patient care.

AstraZeneca’s expertise in oncology is helping to advance Dr. Imyanitov’s research, by bringing deep translational science expertise that helps focus the project in areas of highest unmet needs. Scientists share AstraZeneca’s oncology portfolio data and research on various cancer pathways and AstraZeneca funding supports the laboratory work.

The Petrov Institute is one of many collaborations that AstraZeneca has in emerging economies. We see the R&D eco-systems of Russia, China, Brazil and Korea as increasingly important sources of medical science innovation. Partnering with biotech companies and academic institutions in these markets is a central element of our commitment to delivering innovative new medicines to patients across the globe.

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## What's special about the collaboration?

**AstraZeneca perspective:** “This collaboration is focusing on a specific unmet patient need in Russia,” said Ajay Gautam, Executive Director and Head of External Collaborations for Asia and Emerging Markets: “It helps us understand the science that underpins cancer to deliver personalised treatments based on patients’ genetic make-up. This means that when we start drug development with a better understanding of which patient groups will benefit, we can predict outcomes with more certainty than before.

*“I’m pleased with the engagement between our scientists and Evgeny and his team. We have close interactions and are ahead of our timelines in several areas. We share a mutual and passionate commitment to tackling one of the world’s biggest healthcare challenges.”*

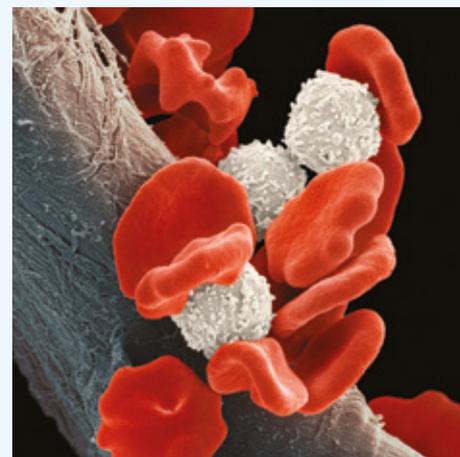
**Petrov Institute perspective:** “Being able to access the heritage and in-depth knowledge of AstraZeneca’s Oncology experts is priceless,” said Dr. Imyanitov. “Working together in this way gives us more strength and depth in our research efforts and contributes to scientific advances in being able to meet the unmet medical needs of Russian patients.”

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- Cancer claims over 7 million lives every year
- Deaths from cancer are expected to reach 12 million by 2030
- In emerging economies, the burden of cancer is also heavy
- Nearly 300,000 Russians die from cancer annually, making it the country’s second biggest killer

## Expanding the Partnership

The collaboration is a key part of AstraZeneca’s strategy to establish partnerships in emerging markets and also fits well with our commitment to personalised healthcare. Success to date has prompted an expansion of the partnership, this time focusing on a particular high priority development compound in AstraZeneca’s oncology portfolio. There has also been a recent high quality publication about the ongoing gene mutation work, featured in the *Journal of Thoracic Oncology*.



The published study analyzed 2276 lung cancer cases - 1412 adenocarcinomas, 92 squamous cell carcinomas, 21 large-cell carcinomas, 18 adenosquamous tumours and 733 lung cancers with unknown histological information or rare histological types. In addition to 455 common mutations (288 ex19del and 167 L858R). The study identified four patients with rare but nonrandom occurrence of EGFR exon 19 in-frame insertions leading to identical amino acid changes. All patients were nonsmoking women with lung adenocarcinomas, and three of them received gefitinib at a standard dose 250 mg/day. One patient achieved partial response, two had stable disease for more than 9 months. This is the first study demonstration of clinical utility of gefitinib in this unusual category of patients and the detection of EGFR exon 19 insertions has to be considered into diagnostic EGFR testing.

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Iyevleva et al J Thorac Onco. 2014 Apr; 9 (4):e31-33