Collaborating with the world

Science is a universal language with the power to bridge cultures and national boundaries. The insights and the technological progress science delivers are recreating the human experience in unforeseen ways.

As nations and research institutions make their contributions to human progress and invest in the scientific literacy and wellbeing of their own future generations, KAIMEC stands out. This large and multi-tiered research facility focuses on medical research in the Kingdom of Saudi Arabia and aims to translate it into novel therapies.

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The three new KAIMEC research centres, in Riyadh, Jeddah and Al-Ahsa, will be fully operational during the next year. They will be equipped with state-of-the-art technologies enabling the growth of medical research in Saudi Arabia and have already attracted worldwide interest.

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As science becomes ever more collaborative and multidisciplinary, new technologies make the solitary pursuit of research less feasible. Cutting-edge techniques often require highly specialised knowledge and skills, the dissemination of which is at a premium. This is why KAIMEC is fostering international collaborations that allow its researchers to fulfil their scientific endeavours and to gain the skills that will strengthen the institution’s research capabilities.

Skills and knowledge transfer

The work of Dr Rabih Al-Kaysi, a synthetic chemist in demand around the world, is a prime example of this spirit of shared knowledge. Al-Kaysi studies the mechanical responses of photo-reactive crystal nanowires and microstructures with bio-inspired shape and function. His work has potential medical applications as a novel method of drug release in response to specific light-based triggers. Dividing his time between King Saud Bin Abdulaziz University for Health Sciences and KAIMEC, he has forged active collaborations with research groups in the United States, the United Arab Emirates, Spain and Lebanon.

Al-Kaysi’s most significant collaboration is with Dr Christopher Bardeen of the University of California, Riverside. There they use techniques such as femtosecond laser spectroscopy, single-crystal X-ray diffraction and solid state NMR to observe the molecular properties of their materials at the nanoscale.

Such work requires collaboration, not just for shared access to technology but for pooled expertise and technical support,” says Al-Kaysi.

The training of PhD students and postdoctoral researchers in new techniques is an integral aspect of collaboration, doubling its benefits. Not only are researchers gaining access to cutting-edge and innovative technology, but training young scientists to be able to use them and transfer these skills to others in the future.

KAIMEC is also engaged in major collaborations in a bid to build its capabilities in combinatorial chemistry for drug discovery, bioinformatics, genomics and stem cell research. One of these programmes is a new drug discovery initiative targeting acute and chronic myeloid leukaemia, two cancers that are especially prevalent in Saudi Arabia. Samples from Saudi Arabian patients obtained by KAIMEC will be screened against small molecule libraries provided by the Fraunhofer Institute for Molecular Biology and Applied Ecology ScreeningPort, based in Hamburg, Germany.

Dr Sheraz Gul from the Fraunhofer-IME SP anticipates that the screens will yield small molecules which can be developed into anticancer drugs. In addition, staff from KAIMEC will be provided with training in the development of assays for drug discovery and high throughput screening.

KAIMEC is a growing centre for excellence open to the exchange of ideas, resources and funding. In the process of building a medical research base in Saudi Arabia, KAIMEC is always on the lookout for global partners to aid its quest for improving healthcare for all.