

BRAC University Signs Memorandum of Collaboration with King's College London



BRAC University has signed a Memorandum of Collaboration with King's College London. This launches the first collaborative partnership between a university in Bangladesh and King's, one of the leading universities in the UK. The Memorandum opens the way for a partnership between King's and BRAC University, initially in Pharmacy, including student and staff exchange, online learning, and research as well as postgraduate study opportunities.

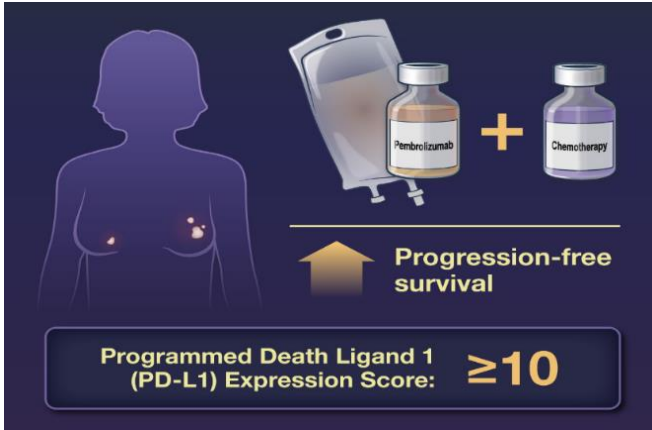
A session was held on the 11th of July at the GDLN with Professor Miraz Rahman, Professor of Medicinal Chemistry, School of Cancer & Pharmaceutical Sciences, King's College, and the BRAC leadership team to mark the start of the partnership and discuss strategies to make this partnership successful. Later, he also met with the faculty members of the School of Pharmacy, BRAC University. During the session, Professor Miraz discussed the scopes of the collaboration and the range of opportunities it would provide.

"I am excited about the partnership between King's College London and BRAC University, initially in Pharmacy. Over the past two years, I have worked with Professor Rahman in establishing this partnership," said Professor Eva Rahman Kabir, Dean, School of Pharmacy, BRAC University. The School of Pharmacy aims to offer students an unparalleled mix of academics, experience, and access to opportunities, and this new partnership seeks to increase global reach in education and research, she added.

"I thoroughly enjoyed my recent visit to BRAC University, and I am delighted by the enthusiasm shown by the university in establishing this new partnership with King's College London. We are eager to collaborate with colleagues at BRAC University to advance our partnership, explore student and staff exchange opportunities, and develop joint research and teaching initiatives," said Professor Miraz Rahman, Professor of Medicinal Chemistry, School of Cancer & Pharmaceutical Sciences, King's College London.

The Memorandum of Collaboration opens avenues for joint initiatives in Pharmacy, encompassing mutual exchanges, online learning, collaborative research, and postgraduate opportunities. Professor Miraz Rahman's enthusiastic endorsement and Professor Eva Rahman Kabir's anticipation indicate a significant stride towards global education and research expansion.

Unlocking the Potential of Pembrolizumab: A Breakthrough in Non-Small Cell Lung Cancer Treatment



Lung cancer accounts for one-fourth of all cancer deaths. There are numerous risk factors for lung cancer, including tobacco use and air pollution. There are many different types of treatments available today. Immune checkpoint inhibitors have fewer negative effects than those medications. Pembrolizumab (Keytruda) is one of the inhibitors that has shown promising results in the treatment of NSCLC (non-small cell lung cancer) given by intravenously. The immune system, which can distinguish between normal and diseased cells, depends heavily on immunological checkpoints.

Immune checkpoint inhibitors are medicines that stop the immune system from being activated by immune checkpoints or proteins. One of the immunotherapy medications that target the PD-1 immune checkpoint is Pembrolizumab (Keytruda). It is frequently used to treat skin cancers including melanoma and NSCLC. In order to eliminate the cancer cells, it functions by inhibiting PD-1 and activating the T-cell. The T-cell is linked to a checkpoint protein known as PD-1. It will function once

it binds to PD-L1. T-cells will be prevented from attacking such cells if PD-1 and PD-L1 are combined. However, since some cancer cells also possess PD-L1, they may occasionally conceal themselves and fend off T-cell attacks. The T-cell can then kill cancer cells by targeting it with specific inhibitors like and Pembrolizumab (Keytruda). Sometimes, though, it will have an impact on healthy cells and mistakenly kill them. It is frequently used along with chemotherapy when a patient has advanced NSCLC. When the patient's tumors test positive for PD-L1 and surgery and chemotherapy are not an option. Pembrolizumab (Keytruda) is frequently used as the first line of treatment. When chemotherapy does not work as expected, Pembrolizumab (Keytruda) should be used. This therapy could have some side effects because the immune system might mistakenly damage healthy cells. A rash, hair loss, blood in the urine, cough, and chest pain are a few side effects. Future study on the immune system must go even further in order to comprehend how tumor cells are destroyed by it. This will make it possible to suggest targets for remedies.



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The Challenges of the Development of a Dengue Vaccine

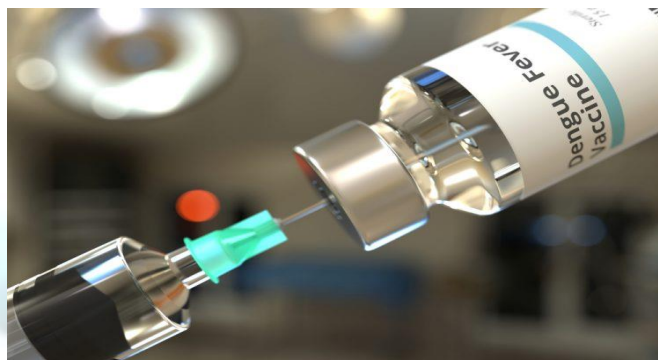


With the current surge in dengue in the country for the umpteenth time, the concern regarding a long-term solution has been raised again. When the COVID-19 pandemic broke out, it took us less than a year to develop a vaccine, and now COVID-19 is almost completely wiped out. So, why is it taking so long to develop a vaccine for a disease that has been around for more than 400 years?

Firstly, dengue is caused by the dengue virus which has 4 serotypes, DEN-1, DEN-2, DEN-3, and DEN-4. Although DENV antibodies show protective effects against homotypic or heterotypic DENV infection, the ADE (antibody-dependent enhancement) effect resulting from a second heterotypic infection majorly accounts for DHF (dengue hemorrhagic fever) and DSS (dengue shock syndrome). However, the immune response and pathogenesis of DHF and DSS are not fully understood, which hinders DENV vaccine development. Secondly, in vaccine development, we lack a conveniently accessible, cheap, and sensitive animal model capable of simulating the immune responses in humans after infection.

Currently, there are five types of vaccines under investigation which are live attenuated vaccine, inactivated virus vaccine, recombinant subunit vaccine, viral vector vaccine, and DNA vaccine. However, only two live attenuated vaccines, DENVAXIA and QDenga are commercially available for use, where only DENVAXIA has been approved by the FDA. DENVAXIA has prevention against all four serotypes in individuals aged 6- 16 with laboratory-confirmed previous dengue infection and living in endemic areas.

Sadly, the population eligible for this vaccine is too small because of adverse effects and a lack of research and data. However, QDenga is authorized for people over four years of age but is only approved in some parts of the world including Europe, Brazil, Argentina, Indonesia, and Thailand. While these vaccines are available with some drawbacks, other types of vaccines still need adequate research and trial to be put into use.



References

Deng, S.-Q., Yang, X., Wei, Y., Chen, J.-T., Wang, X.-J., & Peng, H.-J. (2020). A review on Dengue vaccine development. *Vaccines*, 8(1), 63. <https://doi.org/10.3390/vaccines8010063>

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Dysthymia: A Tale of Depression



The prejudice against mental disorders still exists in our society. Exacerbated by myths and stigmas, the concept of dysthymia is often engulfed by ignorance as well as incomprehension. Dysthymia, known as a persistent form of depression, is a long-lasting mood disorder with brief episodes of normal mood. Though at the beginning failed to explain the biological factor behind this disorder, some health professionals suggested the phenomenon of chemical imbalance for dysthymia. Neurochemical disorders, hereditary reasons, isolation,

childhood trauma, adult stress, as well as isolation, are a few mentionable causes of this disorder.

Here, dysthymia is evidently a kind of major depression due to its chronic nature. Moreover, it can be considered more disabling than major depression in some cases. Here, due to less expressive biological abnormalities, this disorder is often overlooked. But if mood fluctuations deepen more in this case, the condition worsens i.e., from the ongoing gloominess and sadness to the elevation of the inbuilt misery, suicidal thoughts as well as delusions.

Again, the cause of this sort of depression can be more asserted as cyclic i.e., depression leads to consuming intoxicating drugs that lead to Cardiac diseases which eventually lead to depression as well. Now, it is a bit hard to detect people with dysthymia. As these people usually have less expressive episodes due to the brief period of normal mood. They are often well-achievers who appear to be happy as if nothing is bothering them.

