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Research

Dr. Ahmed's research focuses on translational nanomedicine and advanced drug-delivery systems for biologics, nucleic acids, and peptide therapeutics. His work centers on developing plant-derived nanovesicles (PDNVs) and hybrid PDNV–lipid nanoparticle (LNP) platforms to improve the stability, biodistribution, cellular delivery, and therapeutic performance of next-generation medicines. His current research includes oral delivery strategies for GLP-1 and other therapeutic peptides, hybrid mRNA-LNP–PDNV systems, and nanovesicle-based cancer immunotherapy. These programs explore the delivery of mRNA therapeutics, immune modulators, and T-cell engagers for precision and personalized cancer treatment. In parallel, he is performing research in Radiation Biodosimetry Equipment focused on practical, rapid biological-response measurements and simplified assay approaches for radiation exposure assessment and local triage. His research integrates formulation development with in vitro characterization, small-animal pharmacokinetic and biodistribution studies, molecular and immune profiling, radiation-response assessment, and translational preclinical evaluation. Dr. Ahmed's long-term goal is to develop scalable and clinically translatable nanovesicle and hybrid delivery platforms that overcome key barriers to the delivery of peptides, proteins, and nucleic-acid therapeutics. A particular focus is advancing non-invasive oral delivery of biologics and developing modular therapeutic platforms that integrate mRNA, T-cell engagers, immune adjuvants, and other therapeutic payloads for precision and personalized cancer therapy. In parallel, he aims to advance Radiation Biodosimetry Equipment toward rapid, accessible radiation-dose assessment that could support decentralized triage following radiation exposure. Ultimately, his research aims to translate these technologies from proof-of-concept through intellectual property development, industry partnerships, preclinical validation, and future clinical applications.

He previously served as principal scientist at the Center for Advanced Molecular and Immunological Therapies (CAMI), where he lead research focused on the development of mRNA-based personalized cancer vaccines. His primary work involves identifying tumor-specific neoantigens and designing precision immunotherapies that harness the body's immune system to selectively target cancer cells. He also previously served as director of drug development at VBI Vaccines Inc., where he led multidisciplinary teams in research, cGMP manufacturing and regulatory affairs. He played a key role in advancing next-generation vaccine platforms, including lipid nanoparticle-mRNA, enveloped virus-like particles, recombinant protein-based technologies and thermostable formulations.

Dr. Ahmed earned his MBBS (MD equivalent) from the University of Dhaka in Bangladesh and began his career as a research physician at the International Centre for Diarrhoeal Disease Research, Bangladesh, where he conducted several GCP-compliant Phase I/II clinical trials on enteric vaccines in low-resource settings. He completed his doctorate in enteric vaccine development at the University of Gothenburg in Sweden and pursued postdoctoral training in cellular and molecular immunology at Tufts University. He has more than 25 years of experience spanning preclinical research, clinical development, manufacturing and regulatory strategy. He remains passionate about pushing the boundaries of vaccine and immunotherapy innovation to improve patient outcomes and shape the future of precision medicine.

Selected Publications

Berthoud TK, Ahmed Tanvir, Nadia W, Petrov I, Yang L, Colledge D, Hammond R, Soare C, Ontsouka B, Plaskin D, Anderson DE, Diaz-Mitoma F. A three antigen hepatitis B vaccine induces T cells to PreS1 and PreS2 which correlate with anti-HBs antibody titers: An investigation into the immunological mechanisms contributing to high anti-HBs titers. *Vaccine*. 2025;43(Pt 2):126513.

Ma H, Lim TH, Leerapun A, Weltman M, Jia J, Lim Y, Tangkijvanich P, Sukeepaisarnjaroen W, Ji Y, Bert NL, Li D, Zhang Y, Hamatake R, Tan N, Li C, Strasser SI, Ding H, Yoon JH, Stace N, Ahmed Tanvir, Anderson DE, Yan L, Bertoletti A, Zhu Q, Yuen MF. Therapeutic vaccine BRII-179 restores HBV-specific immune responses in patients with chronic HBV in a phase Ib/IIa study. *JHEP Rep*. 2021;3(6):100361.

Fluckiger AC, Ontsouka B, Bozic J, Diress A, Ahmed Tanvir, Berthoud T, Tran A, Duque D, Liao M, McCluskie M, Diaz-Mitoma F, Anderson DE, Soare C. An enveloped virus-like particle vaccine expressing a stabilized prefusion form of the SARS-CoV-2 spike protein elicits highly potent immunity. *Vaccine*. 2021;39(35):4988-5001.

Ahmed Tanvir, Soare C, Fluckiger AC, Ontsouka B, Diress A, Bozic J, Yorke M, Waziri A, Kirchmeier M, Anderson DE. CMV gB/pp65 eVLPs formulated with GM-CSF as a therapeutic vaccine against GBM and medulloblastoma. *Neuro-Oncology*. 2016;vi93. doi:10.1093/neuonc/now212.387.

Kirchmeier M, Fluckiger AC, Soare C, Bozic J, Ontsouka B, Ahmed Tanvir, Diress A, Pereira L, Schödel F, Plotkin S, Dalba C, Klatzmann D, Anderson DE. Enveloped virus-like particle expression of human cytomegalovirus glycoprotein B antigen induces antibodies with potent and broad neutralizing activity. *Clin Vaccine Immunol*. 2014;21(2):174-180.

Ahmed Tanvir, Bhuiyan TR, Zaman K, Qadri F. Vaccines for preventing enterotoxigenic *Escherichia coli* (ETEC) diarrhoea. *Cochrane Database Syst Rev*. 2013 Jul 5;(7).

Ahmed Tanvir, Arifuzzaman M, Lebens M, Qadri F, Lundgren A. CD4+ T-cell responses to an oral inactivated cholera vaccine in young children in a cholera endemic country and the enhancing effect of zinc supplementation. *Vaccine*. 2009;28(2):422-429.

Ahmed Tanvir, Das SK, Golden JK, Saltzman E, Roberts SB, Meydani SN. Calorie restriction (CR) enhances T cell mediated immune response in overweight men and women. *J Gerontol A Biol Sci Med Sci*. 2009;64(11):1107-1113.

Ahmed Tanvir, Svennerholm AM, Tarique AA, Sultana GN, Qadri F. Enhanced immunogenicity of an oral inactivated cholera vaccine in infants in Bangladesh obtained by zinc supplementation and by temporary withholding breast feeding. *Vaccine*. 2009;27(9):1433-1439.

Ahmed Tanvir, Lundgren A, Arifuzzaman M, Qadri F, Teneberg S, Svennerholm AM. Children with Lewis (a+b-) blood group have increased susceptibility to diarrhea caused by enterotoxigenic *Escherichia coli* expressing colonization factor I-group fimbriae. *Infect Immun*. 2009;77(5):2059-2064.

Marko MG, Ahmed Tanvir, Bunnell SC, Wu D, Chung H, Huber BT, Meydani SN. Age-associated decline in effective immune synapse formation of CD4 (+) T cells is reversed by vitamin E supplementation. *J Immunol*. 2007;178(3):1443-1449. *Contributed equally.