Broad area of Research: Development of novel therapeutic targets and drugs for the treatment of cancer

Projects:

1. An investigation on the therapeutic potential of butein isolated from Toxicodendron vernicifluum against Human Oral Squamous Cell Carcinoma (DST-SERB).
2. Liposome encapsulated Azadiradione for triple negative breast cancer treatment (DST-SERB).
3. DBT-AIST International Center for Translational and Environmental Research (DAICENTER), DBT.
4. Synthesis and characterization of noble metal nanoparticles and its anticancer activities against oral cancer cells (DBT)
5. Deciphering the role of different isoforms of AKT in the development of human oral squamous cell carcinoma (ICMR)

Objectives:

➢ To develop novel molecular targets for various cancers in North East Region
➢ To develop novel drugs for the treatment of various cancers by exploring the biodiversity of North East Region
➢ To enhance the efficacy of novel drugs by different nanotechnological approaches

Deliverables:

Highly specific molecular targets and highly efficacious safe and affordable drugs for cancer treatment.

Outcome:

➢ Developed novel molecular targets for the treatment of oral, lung and triple negative breast cancers.
➢ Developed safe and efficacious drugs for cancer treatment by in vitro methods.

Societal impact:

North East Region of India is known as the "**Hub of cancer**" in country and many people succumb to death in this region due to cancer. Therefore, outcome of these projects would help us to save the life of many patients and to improve the quality of life.

Current status:

➢ We are currently working on to develop more specific molecular targets and personalized medicines for the treatment of commonly occurring cancers in the North East Region of India.
➢ In addition, we are also engaged taking already established targets and drugs to the bed side.
➢ Moreover, development of internationally competent manpower in North East Region of India in Cancer Research is our priority area.

biomolecules — MDPI
Article
Isoform-Specific Role of Akt in Oral Squamous Cell Carcinoma
Nand Kishor Roy [1], Javadi Monisha [1], Ganesan Padmavathi [1], H. Lalhruaitluanga [2], Nachimuthu Senthil Kumar [2], Anuj Kumar Singh [1], Devivasha Bordoloi [1], Munindra Narayan Baruah [3], Gazi Naseem Ahmed [3], Imliwati Longkumer [3], Frank Arfuso [4], Alan Prem Kumar [5,6,7,8] and Ajaikumar B. Kunnumakkara [1,*]

biomolecules — MDPI
Article
TIPE2 Induced the Proliferation, Survival, and Migration Syf Lung Cancer Cells Through Modulation of Akt/mTOR/NF-κB Signaling Cascade
Devivasha Bordoloi [1], Kishore Banik [1], Ganesan Padmavathi [1], Rajesh Vikkurthi [1], Choudhary Harsha [1], Nand Kishor Roy [1], Anuj Kumar Singh [1], Javadi Monisha [1], Hong Wang [2,3], Alan Prem Kumar [2,4,*] and Ajaikumar B Kunnumakkara [1,*]
Molecular and Cellular Biochemistry (2021) 476:3303–3318
https://doi.org/10.1007/s11010-021-04060-1

Human tumor necrosis factor alpha-induced protein eight-like 1 exhibited potent anti-tumor effect through modulation of proliferation, survival, migration and invasion of lung cancer cells
Devivasha Bordoloi[1] · Ganesan Padmavathi[1] · Kishore Banik[1] · Khwairakpam Amrita Devi[1] · Choudhary Harsha[1] · Sosmitha Girisa[1] · Constanze Buhrmann[2] · Mehdi Shakibaei[2] · Ajaikumar B. Kunnumakkara[1]

ELSEVIER — Life Sciences
Available online 2 November 2021, 120118
In Press, Journal Pre-proof
Tumor necrosis factor-α induced protein 8 (TNFAIP8/TIPE) family is differentially expressed in oral cancer and regulates tumorigenesis through Akt/mTOR/STAT3 signaling cascade
Ganesan Padmavathi [a], Javadi Monisha [a], Devivasha Bordoloi [a], Kishore Banik [a], Nand Kishor Roy [a], Sosmitha Girisa [a], Anuj Kumar Singh [a], Imliwati Longkumer [b], Munindra Narayan Baruah [b], Ajaikumar B. Kunnumakkara [a,*]
Received: 16 December 2020 | Revised: 14 June 2021 | Accepted: 14 August 2021
DOI: 10.1002/ptr.726-4

REVIEW — WILEY
Current clinical developments in curcumin-based therapeutics for cancer and chronic diseases
Aviral Kumar[1] | Choudhary Harsha[1] | Dey Parama[1] | Sosmitha Girisa[1] | Uzini Devi Daimary[1] | Xinliang Mao[2] | Ajaikumar B. Kunnumakkara[1]

ACS Pharmacology & Translational Science
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From Simple Mouth Cavities to Complex Oral Mucosal Disorders—Curcuminoids as a Promising Therapeutic Approach
Sosmitha Girisa,# Aviral Kumar,# Varsha Rana, Dey Parama, Uzini Devi Daimary, Saman Warnakulasuriya, Alan Prem Kumar, and Ajaikumar B. Kunnumakkara*
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