Ten best papers of the candidate (In order of importance)

1. Chakravarti M, Dhar S, Bera S, Sinha A, Roy K, Sarkar A, Dasgupta S, Bhuniya A, Saha A, Das J, BanerjeeS, Alam N, Vernekar M, Pal C, Datta D, Baral R, **Bose A***, PD1-therapy-resistant terminally exhausted $CD8^{+}$T cells promote generation and maintenance of functionally aggressive cancer stem cells (2023) ***Cancer Res**, 83(11)1815-1833*. doi: 10.1158/0008-5472.CAN-22-3864. **Corresponding Author*

Impact Factor: 12.70; Citation Index: 3

Important discoveries/contributions:

The work described for the first time that tumor-resident PD1-therapy resistance terminally exhausted CD8+ T cells can promote generation of aggressive, drug resistance cancer stem cells. Therefore, the work argued for a screening of patients with carcinoma for either CD8+ TILs and TTEX frequency or expression of LAMP 3/NRP1 on CD8+PD1+T cells prior to anti–PD-1 therapy, which could predict patient clinical outcomes as well. In addition, targeting the LAMP3/NRP1–VEGFR2 axis could be a therapeutic strategy in advanced patients with carcinoma with limited $CD8^{+}$ T-cell infiltration and high T_{TEX} frequency.

Conceptualization, Experiment design, data Analysis and writing Manuscript

2. Dasgupta S, Saha A, Ganguly N, Bhuniya A, Dhar S, Guha I, Ghosh T, Sarkar A, Ghosh S, Roy K, Das T, Banerjee S, Pal C, Baral R, **Bose A***, NLGP regulates RGS5-TGFß axis to promote pericyte-dependent vascular normalization during restricted tumor growth (2022), ***The FASEB J***, 36 (5), e22236.**Corresponding Author*

Impact Factor: 5.16; Citation Index: 1

Important discoveries/contributions:

The study described the mechanisms of NLGP's effectiveness in normalizing tumor-vasculature by chiefly modulating pericyte-biology and endothelial-cell-pericyte interactions in tumor-host to further strengthen its translational potential as single modality treatment.

Conceptualization, Experiment design, data Analysis and writing Manuscript

3. Dasgupta S, Ghosh T, Dhar J, Nandi P, Bhuniya A, Das A, Saha A, Guha I, Das J, Chakravorty M, Dasgupta PS, Alam N, Chakraborty J, Majumder S, Chakraborti P, Storkus WJ, Baral R, **Bose A***. RGS5-TGFβ-Smad2/3 axis switches pro- to anti-apoptotic signaling in tumor-residing pericytes, assisting tumor growth (2021) ***Cell Death and Differentiation**,* 28(11), 3052-3076. doi.org/10.1038/s41418-021-00801-3. **Corresponding Author*

Impact Factor: 15.828; Citation Index: 16

Important discoveries/contributions:

This study reports a novel mechanism by which TGFβ fortifies and promotes survival of tumor pericytes by switching pro- to anti-apoptotic RGS5 signaling in TME. This study also projected RGS5 as a unique target to achieve vascular normalization to improve delivery of therapeutic drugs as well as immune cells into tumors

Conceptualization, Experiment design, data Analysis and writing Manuscript

4. Storkus WJ, Maurer D, Lin Y, Ding F, **Bose A**, Lowe D, Rose A, DeMark M, Karapetyan L, Taylor JL, Chelvanambi M, Fecek RJ, Filderman JN, Looney TJ, Miller L, Linch E, Lowman GM, Kalinski P, Butterfield LH, Tarhini A, Tawbi H, Kirkwood JM. Dendritic cell vaccines targeting tumor blood vessel antigens in combination with dasatinib induce therapeutic immune responses in patients with checkpoint-refractory advanced melanoma (2021) ***J Immunother Cancer,*** 9(11):e003675. doi: 10.1136/jitc-2021-003675.

Impact Factor: 13.751; Citation Index: 15

Important discoveries/contributions:

This study is a first-in-human, randomized pilot phase II clinical trial combining vaccines targeting overexpressed, non-mutated tumor-blood-vessel-antigens and tyrosine kinase inhibitor,dasatinibfor patients with advanced melanoma.

Designing, characterization and pre-clinical data acquisition with peptide vaccine used for the clinical trial and testing *in vitro* human response against vaccine.

5. Guha I, Bhuniya A, Shukla D, Patidar A, Nandi P, Saha A, Dasgupta S, Ganguly N, Ghosh S, Nair A, Majumdar S, Saha B, Storkus WJ, Baral R, **Bose A***. Tumor arrests DN2 to DN3 pro-T cell transition and promotes its conversion to thymic dendritic cells by reciprocally regulating Notch1 and Ikaros signaling (2020) ***Front. Immunol***., 11:898. doi: 10.3389/fimmu.2020.00898. **Corresponding Author*

Impact Factor: 7.56; Citation Index: 5

Important discoveries/contributions:

This study described a novel function of thymically-expressed IL-10 in the tumor-host which diverts T-cell early-differentiation toward a DC pathway, thus limiting the generation of protective adaptive immune repertoire.

Conceptualization, Experiment design, data Analysis and writing manuscript

6. Ghosh T, Nandi P, Ganguly N, Guha I, Bhuniya A, Ghosh S, Sarkar A, Saha A, Dasgupta S, Baral R, **Bose A***. NLGP counterbalances the immunosuppressive effect of tumor-associated mesenchymal stem cells to restore effector T cell functions (2019) ***Stem Cell Res Ther***, 10, 296. **Corresponding Author*

Impact Factor: 5.3; Citation Index: 17

Important discoveries/contributions:

The study projected NLGP as a prospective immunotherapeutic agent in cancer treatmentto control the functions of highly immunosuppressive TC-MSCs

Conceptualization, Experiment design, data Analysis and writing Manuscript

7. Ghosh T, Barik S, Bhuniya A, Dhar J, Ghosh S, Sarkar M, Guha I, Sarkar K, Chakraborti P, Saha B, Storkus WJ, Baral R, **Bose A***. Tumor-associated mesenchymal stem cells inhibit naïve T cell expansion by blocking cysteine export from dendritic cells (2016) ***Int J Cancer,*** 139, 2068-2081.**Corresponding Author*

Impact Factor: 6.5; Citation Index: 30

Important discoveries/contributions:

This study provides evidence for a novel mechanism of tumor MSC-mediated inhibition of T cell priming by targeting DC-T cell crosstalk inside tumor draining lymph node via down regulating cystathionase expression in DC.

Conceptualization, Experiment design, data Analysis and writing Manuscript

8. **Bose A***, Barik S, Banerjee S, Ghosh T, Mallick A,Bhattacharya Majumdar S, GoswamiKK, Bhuniya A, Banerjee S, Baral R, Storkus WJ, Dasgupta PS, Majumdar S. Tumor-derived vascular pericytes anergize T helper cells (2013) ***J Immunol,*** 191, 971-981. **First and Corresponding Author*

Impact Factor: 5.59; Citation Index: 66.*Cited as a featured article in www.MDLinx.com; 1st among Top 20 articles* in the Domain of Article 23785117, Since 2013

Important discoveries/contributions:

This study reveals for the first time that tumor-derived pericytes can participates in immune reaction to induce $CD4^{+}$T cell anergy.

Conceptualization, Experiment design, data Analysis and writing Manuscript

9. Bose A*, Taylor JL, Alber S, Watkins SC, Garcia JA, Rini BI, Ko JS, Finke JH, Storkus WJ. Sunitinib facilitates the activation and recruitment of therapeutic anti-tumor immunity in concert with specific vaccination (2011)***Int J Cancer,*** 129, 2158-70, 2011. **First Corresponding Author*

Impact Factor: 6.20; Citation Index: 156

Important discoveries/contributions:

This study demonstrated longitudinal immune molecular and cellular changes associated with tumor regression and disease-free status after the treatment with Sunitinib along with tumor-antigen-loaded DC vaccine

Designing and performing Experiments, data analysis and manuscript preparation.

10. Zhao X*, **Bose A***, Komita H, Taylor JL, Kawabe M, Chi N, Spokas L, Lowe D, Doldbach C, Alber S, Watkins SC, Butterfield LH, Kalinski P, Kirkwood JM, Storkus WJ. Intratumoral IL-12 gene therapy results in the cross priming of Tc1 cells reactive against tumor associated stromal antigens (2011) *Mol Ther,* 19, 805-814. **both authors contributed equally.*

Impact Factor: 7.04; Citation Index: 48

Important discoveries/contributions:

This study was conducted in HLA-A2 transgenic humanized mice bearing established HLA-$A2^{neg}$ B16 melanomas, those were effectively treated by intratumoral injection of syngeneic dendritic cells (DCs) transduced to express high levels of interleukin (IL)-12, resulting in $CD8^+$ T cell-dependent antitumor protection. Observed Therapeutic benefit was associated with the crosspriming of HLA-A2-restricted type-1 $CD8^+$ T cells reactive against antigens expressed by stromal cells [*i.e.*, pericytes and vascular endothelial cells. The tumor-associated stromal antigen (TASA)-derived peptides studied here are evolutionarily conserved and could be recognized by $CD8^+$ T cells harvested from the blood of HLA-$A2^+$ normal donors or melanoma patients after *in vitro* stimulation. These TASA and their derivative peptides prove useful in vaccine formulations against solid cancers and tested in phase II clinical trial after FDA approval.

Performing Experiments, screening of TASA-derived peptides, data analysis and manuscript preparation.