Molecular Oncology Publication Projects

Focussed areas under Molecular Oncology Publication Projects at NTHRYS BIOTECH LABS:

1. Therapeutics

1. **Objective:** Develop targeted therapies focusing on HER2-negative breast cancers, exploring novel signaling pathways for treatment resistance.
   Explanation: Investigate alternative pathways such as PI3K/Akt/mTOR for potential therapeutic targets, addressing the subset of patients resistant to standard HER2-targeted therapies.

3. Basic Research

1. **Objective:** Understand the role of tumor microenvironment in breast cancer metastasis.
   Explanation: Investigate interactions between cancer cells and stromal components, focusing on immune responses and extracellular matrix remodeling, to identify potential therapeutic targets.

4. Therapeutics

1. **Objective:** Develop personalized immunotherapies targeting specific neoantigens in lung adenocarcinoma.
   Explanation: Utilize genomic sequencing and bioinformatics to identify patient-specific neoantigens, leading to personalized immunotherapeutic strategies.

6. Basic Research

1. **Objective:** Explore the impact of microbiota on lung cancer development and progression.
   Explanation: Investigate the lung microbiome s influence on immune responses, inflammation, and treatment responses, providing insights into potential therapeutic interventions.

7. Therapeutics

1. **Objective:** Develop targeted therapies for colorectal cancer based on distinct molecular subtypes.
   Explanation: Characterize subtypes based on genetic alterations and signaling pathways, developing targeted therapies tailored to specific subgroups, potentially reducing resistance

rates.

9. Basic Research

1. **Objective:** Investigate the role of gut microbiota in colorectal cancer progression.
   Explanation: Study microbiome composition, metabolites, and their influence on inflammation and tumor development, paving the way for microbiota-based interventions.

10. Therapeutics

1. **Objective:** Develop hormone therapy alternatives for castration-resistant prostate cancer (CRPC).
   Explanation: Investigate non-hormonal targeted therapies addressing androgen receptor signaling and alternative pathways, providing options for patients resistant to standard hormone therapies.

12. Basic Research

1. **Objective:** Investigate the role of epigenetic modifications in prostate cancer initiation and progression.
   Explanation: Study DNA methylation patterns, histone modifications, and non-coding RNA involvement, providing insights into targeted therapies and biomarker development.

13. Therapeutics

1. **Objective:** Develop therapies targeting homologous recombination deficiency (HRD) in ovarian cancer.
   Explanation: Investigate PARP inhibitors, immunotherapies, and other targeted agents specifically for HRD-positive ovarian cancers, improving treatment outcomes for this subgroup.

15. Basic Research

1. **Objective:** Investigate the role of fallopian tube epithelium in ovarian cancer initiation.
   Explanation: Study precursor lesions in the fallopian tubes, exploring genetic and epigenetic changes, leading to a better understanding of early events in ovarian tumorigenesis.

16. Therapeutics

1. **Objective:** Develop immunotherapies targeting liver cancer-specific antigens.
   Explanation: Identify unique antigens expressed in hepatocellular carcinoma (HCC) cells, creating immunotherapies that specifically target cancer cells while sparing healthy tissues.
2. **Objective:** Develop precision therapies targeting liver cancer stem cells.
   Explanation: Investigate specific markers and pathways in liver cancer stem cells, aiming for therapies that target these cells self-renewal and resistance mechanisms.

18. Basic Research

1. **Objective:** Investigate the role of liver microenvironment components in HCC progression.
   Explanation: Study interactions between cancer cells, immune cells, fibroblasts, and extracellular matrix components, revealing potential targets for therapies aiming to disrupt the tumor microenvironment.
2. **Objective:** Study the role of hypoxia-inducible factors (HIFs) in liver cancer progression and therapy resistance.
   Explanation: Understand the interplay between HIFs, angiogenesis, and immune evasion in liver cancer, offering insights into targeted therapy development.

19. Therapeutics

1. **Objective:** Develop therapies targeting pancreatic cancer stem cells.
   Explanation: Investigate signaling pathways and surface markers specific to cancer stem cells, developing therapies that eradicate these cells, preventing relapse and metastasis.
2. **Objective:** Develop therapies targeting pancreatic cancer desmoplasia.
   Explanation: Investigate stromal components, such as fibroblasts and extracellular matrix proteins, aiming to disrupt the tumor-stroma interaction and enhance drug delivery to cancer cells.

21. Basic Research

1. **Objective:** Investigate the impact of stromal components on pancreatic cancer chemoresistance.
   Explanation: Study interactions between cancer cells and stromal cells, including fibroblasts and immune cells, to understand mechanisms leading to chemoresistance, guiding the development of combination therapies.
2. **Objective:** Investigate the role of exosomal communication in pancreatic cancer metastasis.
   Explanation: Study the content and mechanisms of exosomal communication between cancer cells and distant organs, providing insights into metastatic processes and potential therapeutic targets.

22. Therapeutics

1. **Objective:** Develop blood-brain barrier-permeable drugs for glioblastoma multiforme (GBM) treatment.
   Explanation: Investigate nanotechnology-based drug delivery systems and identify small molecules capable of crossing the blood-brain barrier, enhancing the efficacy of GBM therapies.
2. **Objective:** Develop therapies targeting glioblastoma heterogeneity.
   Explanation: Investigate intra-tumoral heterogeneity at single-cell resolution, aiming to develop combination therapies tailored to different cell populations within glioblastomas.
3. **Objective:** Develop therapies targeting glioblastoma immune checkpoint molecules.

Explanation: Investigate immune checkpoint inhibitors and combination strategies, aiming to enhance immune responses against glioblastoma cells and overcome immunosuppressive microenvironment.

4. **Objective:** Explore the potential of targeted drug delivery systems for glioblastoma treatment.
   Explanation: Investigate nanoparticles, liposomes, and other drug carriers to enhance drug penetration through the blood-brain barrier, improving the delivery of therapeutic agents to glioblastoma cells.

24. Basic Research

1. **Objective:** Investigate the role of neural stem cells in brain cancer initiation and recurrence.
   Explanation: Study interactions between neural stem cells and cancer cells, exploring genetic and molecular factors contributing to tumor initiation, recurrence, and therapeutic resistance.
2. **Objective:** Investigate the role of immune evasion mechanisms in glioblastoma.
   Explanation: Study immune checkpoint molecules, tumor-infiltrating lymphocytes, and immunosuppressive factors, aiming to develop immunotherapies that overcome glioblastoma s immune evasion strategies.
3. **Objective:** Investigate the role of cancer-associated neurons in glioblastoma progression.
   Explanation: Study interactions between glioblastoma cells and adjacent neurons, understanding neuronal influences on tumor growth, invasion, and therapeutic responses, potentially revealing novel therapeutic targets.
4. **Objective:** Explore the impact of glioblastoma heterogeneity on treatment responses.
   Explanation: Investigate single-cell RNA sequencing and spatial transcriptomics, aiming to dissect intra-tumoral heterogeneity and identify unique vulnerabilities within different glioblastoma cell populations.
5. **Objective:** Investigate the role of extracellular vesicles in glioblastoma communication and therapy resistance.
   Explanation: Study the content and functions of exosomes and microvesicles released by glioblastoma cells, understanding their roles in intercellular communication, immune modulation, and therapy resistance.
6. **Objective:** Investigate the impact of tumor metabolism on glioblastoma therapy resistance.
   Explanation: Study metabolic reprogramming, including aerobic glycolysis and glutamine addiction, understanding their roles in therapy resistance and exploring metabolic inhibitors as therapeutic options.
7. **Objective:** Investigate the role of tumor-educated platelets in glioblastoma metastasis.
   Explanation: Study interactions between glioblastoma cells and platelets, understanding how platelet activation and release of growth factors contribute to tumor progression, invasion, and metastasis.
8. **Objective:** Investigate the impact of glioblastoma-associated microglia/macrophages (GAMs) on tumor immunosuppression.
   Explanation: Study the crosstalk between GAMs and glioblastoma cells, exploring signaling pathways and immune checkpoint molecules, aiming to modulate GAM activity and enhance anti-tumor immune responses.

25. Therapeutics

1. **Objective:** Develop combination therapies targeting both BRAF-mutated and wild-type melanomas.
   Explanation: Investigate synergistic effects of targeted therapies and immunotherapies, exploring novel combinations to improve treatment responses in both BRAF-mutated and wild-type melanomas.
2. **Objective:** Develop combination therapies involving targeted agents, immunotherapies, and oncolytic viruses for melanoma treatment.
   Explanation: Investigate synergistic effects of targeted therapies, immune checkpoint inhibitors, and virotherapies, aiming for comprehensive melanoma treatment strategies.

27. Basic Research

1. **Objective:** Investigate the role of tumor-infiltrating lymphocytes (TILs) in melanoma regression and treatment response.
   Explanation: Study the interactions between TILs, cancer cells, and the tumor microenvironment, understanding factors influencing TIL activity and leveraging this knowledge for immunotherapeutic strategies.
2. **Objective:** Investigate the impact of melanoma-associated fibroblasts (MAFs) on tumor progression and therapy resistance.
   Explanation: Study the crosstalk between melanoma cells and MAFs, elucidating how MAFs contribute to melanoma aggressiveness and exploring therapies targeting MAF-mediated pathways.

28. Therapeutics

1. **Objective:** Develop therapies targeting von Hippel-Lindau (VHL) loss-of-function mutations in renal cell carcinoma (RCC).
   Explanation: Investigate small molecules and gene therapies that restore VHL function or target downstream effects, providing targeted therapies for VHL-mutated RCC.
2. **Objective:** Develop therapies targeting metabolic vulnerabilities in renal cell carcinoma.
   Explanation: Investigate altered metabolic pathways, such as the Warburg effect, aiming for therapies that exploit these metabolic vulnerabilities and induce cancer cell death.

30. Basic Research

1. **Objective:** Investigate the impact of immune checkpoint molecules on RCC immunotherapy resistance.
   Explanation: Study interactions between immune checkpoints (e.g., PD-1, CTLA-4) and immune cells, identifying mechanisms leading to immunotherapy resistance and developing combination therapies to overcome resistance.
2. **Objective:** Investigate the role of immune cell subsets in renal cell carcinoma immune responses.
   Explanation: Study interactions between tumor-infiltrating lymphocytes, macrophages, and dendritic cells, aiming to understand their roles in anti-tumor immunity and inform

immunotherapy strategies.

31. Therapeutics

1. **Objective:** Develop CAR-T cell therapies targeting leukemia-specific antigens.
   Explanation: Identify unique surface antigens on leukemia cells, engineering CAR-T cells to specifically target these antigens, providing highly targeted and effective therapies for leukemia.
2. **Objective:** Develop therapies targeting epigenetic alterations in hematologic cancers.
   Explanation: Investigate DNA methyltransferase inhibitors, histone deacetylase inhibitors, and bromodomain inhibitors, aiming to reverse aberrant epigenetic modifications and induce cancer cell differentiation or apoptosis.

33. Basic Research

1. **Objective:** Investigate the impact of leukemia stem cells on disease recurrence and treatment resistance.
   Explanation: Study genetic and epigenetic factors specific to leukemia stem cells, understanding their role in relapse and resistance, guiding the development of therapies targeting these cells.
2. **Objective:** Investigate the role of long non-coding RNAs (lncRNAs) in leukemia stem cell maintenance.
   Explanation: Study specific lncRNAs, their interactions with chromatin modifiers, and their influence on leukemia stem cell self-renewal, aiming to develop therapies targeting these molecular processes.

34. Therapeutics

1. **Objective:** Develop targeted therapies for anaplastic thyroid cancer (ATC) focusing on BRAF and other driver mutations.
   Explanation: Investigate small molecule inhibitors and immunotherapies targeting BRAF and other mutations specific to ATC, providing effective treatments for this aggressive subtype.

36. Basic Research

1. **Objective:** Investigate the role of thyroid cancer-derived exosomes in immune evasion and metastasis.
   Explanation: Study exosome composition and their effects on immune responses and metastatic processes, providing insights into therapies targeting exosome-mediated pathways.

37. Therapeutics

1. **Objective:** Develop therapies targeting osteosarcoma cancer stem cells.
   Explanation: Investigate signaling pathways and surface markers specific to cancer stem cells, developing therapies that eradicate these cells, preventing relapse and metastasis.

39. Basic Research

1. **Objective:** Investigate the impact of tumor-associated macrophages (TAMs) on osteosarcoma progression and chemoresistance.
   Explanation: Study interactions between TAMs, cancer cells, and the tumor microenvironment, understanding mechanisms leading to chemoresistance and developing therapies targeting TAM-mediated pathways.

40. Therapeutics

1. **Objective:** Develop combination therapies targeting EGFR and immune checkpoint molecules in head and neck squamous cell carcinoma (HNSCC).
   Explanation: Investigate synergistic effects of EGFR inhibitors and immune checkpoint blockade, exploring optimal combinations for improved treatment responses in HNSCC.

42. Basic Research

1. **Objective:** Investigate the impact of cancer-associated fibroblasts (CAFs) on HNSCC invasion and metastasis.
   Explanation: Study interactions between CAFs, cancer cells, and the extracellular matrix, understanding the mechanisms driving invasion and metastasis, guiding the development of therapies targeting CAF-mediated pathways.

Fee Structure

Note 1: Fee mentioned below is per candidate.
Note 2: Fee of any sort is NON REFUNDABLE once paid. Please cross confirm all the details before proceeding to fee payment.
Note 3: Fee is including all taxes.

Please contact +91-9014935156 for fee payments info or EMI options or Payment via Credit Card or Payment using PDC (Post Dated Cheque).

Please check below for Payment QR Code.

NTHRYS Biotech Labs

+91 90149 35156

9014935156@okbizaxis