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## Exploring the mechanisms of metastatic onset for novel treatment strategies

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## Propositions

Accompanying the thesis

### Exploring the mechanisms of metastatic onset for novel treatment strategies

1. Upon detecting changes in the stiffness of the extracellular matrix, intracellular YAP/TAZ molecules translocate into the nucleus, where they oversee the regulation of intracellular stemness genes. *Chapter 2, this thesis*
2. Prostate cancer cells undergo metabolic rewiring through mTOR-AMPK during the process of metastasis to counteract cell death induced by environmental pressures within the circulatory system. *Chapter 3, this thesis*
3. Cyclic ruthenium-RGD conjugated prodrugs can penetrate the zebrafish's blood-brain barrier to target glioblastoma and kill tumor cells upon photoactivation. *Chapter 4, this thesis*
4. Nanoparticles modified with A6 peptides can specifically target tumor cells with high CD44 expression and deliver YAP/TAZ siRNA into the tumor cells, thereby achieving a highly effective anti-cancer effect. *Chapter 5, this thesis*
5. Circulating tumor cells in the bloodstream adapt to changes in the external environment through alterations in their intrinsic pathways, enabling tumor cells to achieve long-distance metastasis.
6. Exploring the aberrant pathways shared by cancer stem cells and circulating tumor cells with the initial tumor cells is of significant importance for the development of new cancer treatment strategies.
7. Gene therapy based on nanoparticle delivery systems is an advanced therapeutic approach that has demonstrated potential efficacy in various diseases, including cancer.
8. Modifying anticancer drugs with peptides that target particular proteins can effectively enhance the specificity of the drug in treating cancer.
9. Science demands independent thought, relentless exploration, and the audacity to question.
10. Interest and passion are the greatest motivators.

Gangyin Zhao

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