

Thirst for knowledge led to the door of Academy of Scholars: My challenging Journey

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Got educated in this rural- environment but I discovered myself



Vision for future was still in the dark

Never lost hope!!!!!!!!!!!!!!!



Lotus is the sacred flower of India and it blooms in the mud: Many professionals, leaders and scientists bloomed from the muddy-land of India



After all it is the land of Taj-Mahal



Wonderful time during MS at AMU



AMU: Exciting and beautiful environment for learning



BHU: Best time of my University life



Memorial Sloan-Kettering Cancer Center: Learned how to do true molecular cancer research and got the taste of real success as a scientist



**Oakland University: First Independent faculty position-
The role of hormone and hormone receptor in breast
and prostate cancer**



HFH: Senior Staff & Director of Tumor Biology



WSU: Enjoying life as a scientist, a husband and a proud father of three children



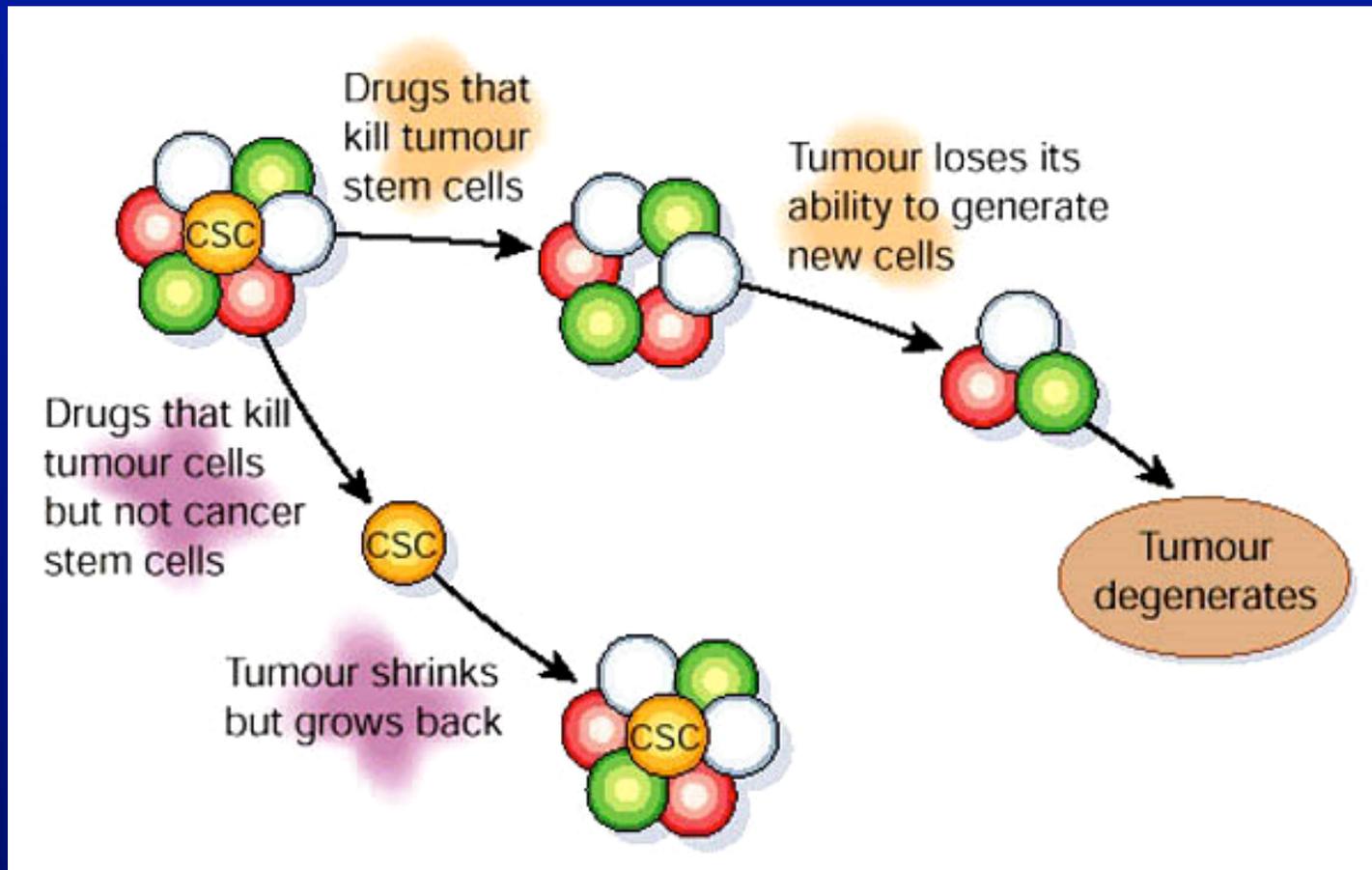
miRNAs and Cancer

**Why cannot we cure cancer?
The concept of drug resistance
and cancer stem cells**

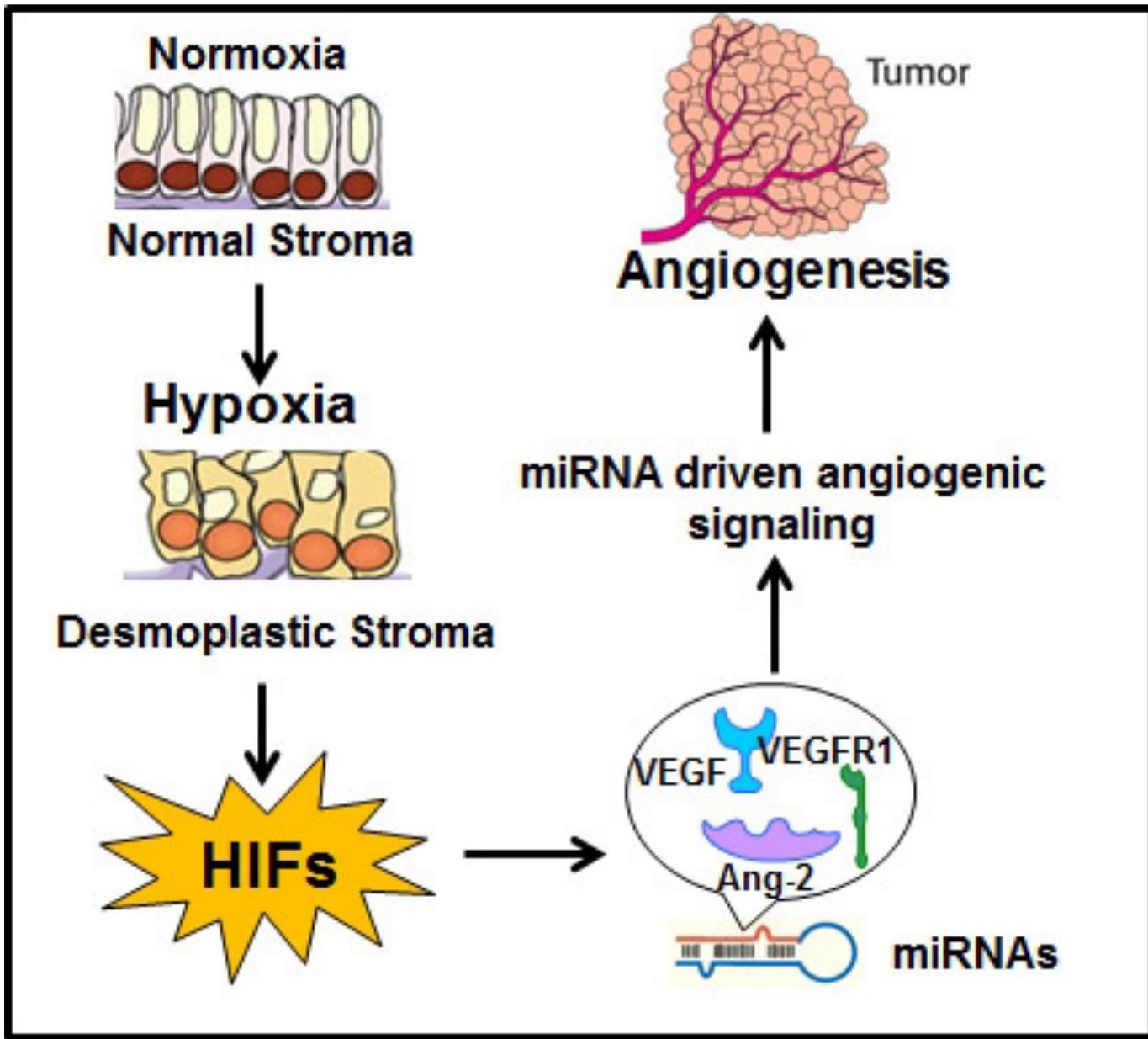
Challenges and Opportunities

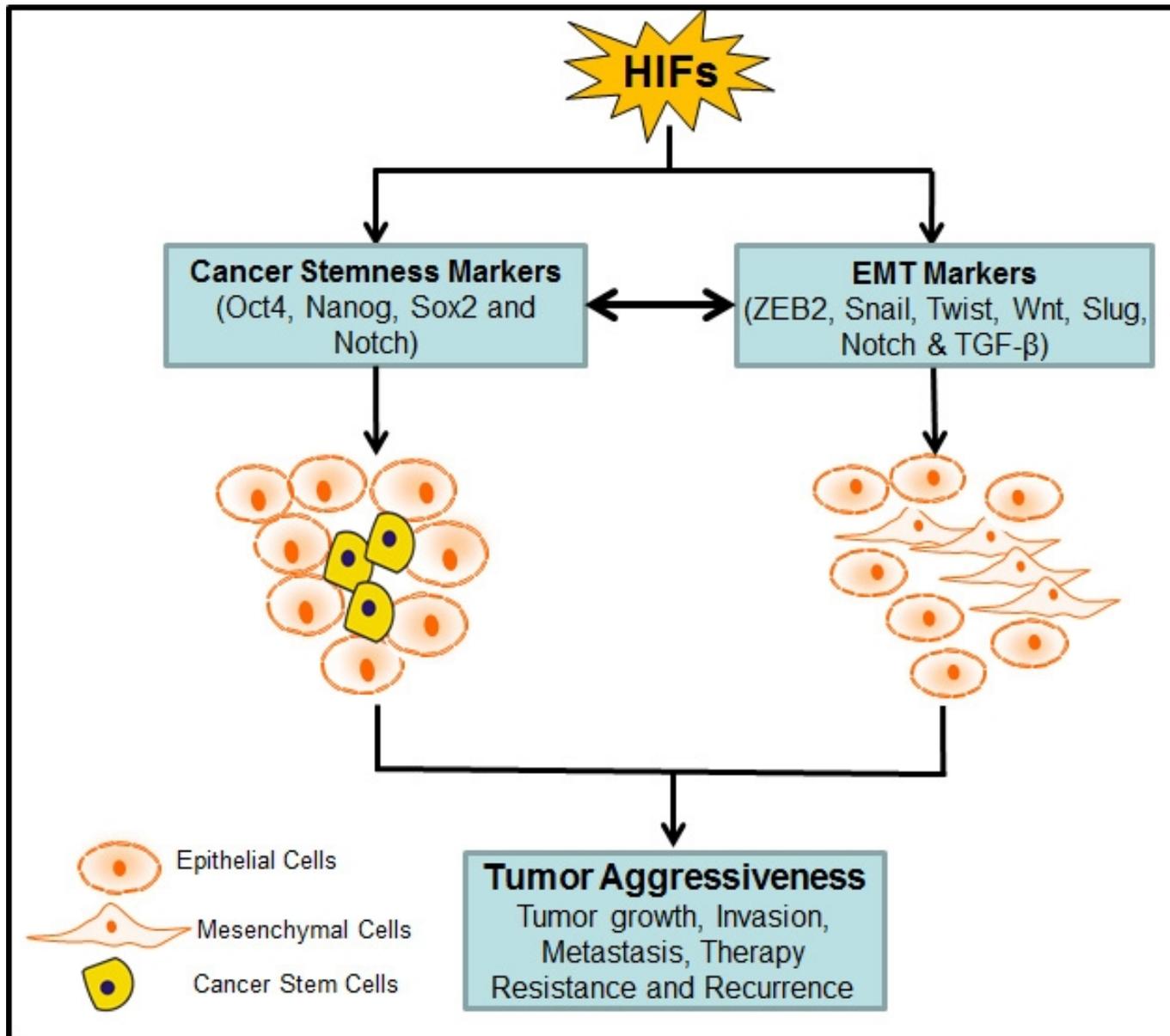
- There is no cure for metastatic cancer
- Cancer cells that leads to metastasis are highly heterogeneous
- Among these heterogeneous cells, EMT phenotypic cells, Cancer Stem Cells (CSCs) or Cancer Stem-Like Cells (CSLCs) are becoming novel targets
- EMT, CSCs or CSLCs are highly resistant to conventional therapies, and thus these are the cells which leads to tumor recurrence and metastasis
- Therefore, strategies (**nutraceuticals?**) for targeted elimination of these resistant cells would lead to eradicate tumors, and thus eliminate metastatic disease

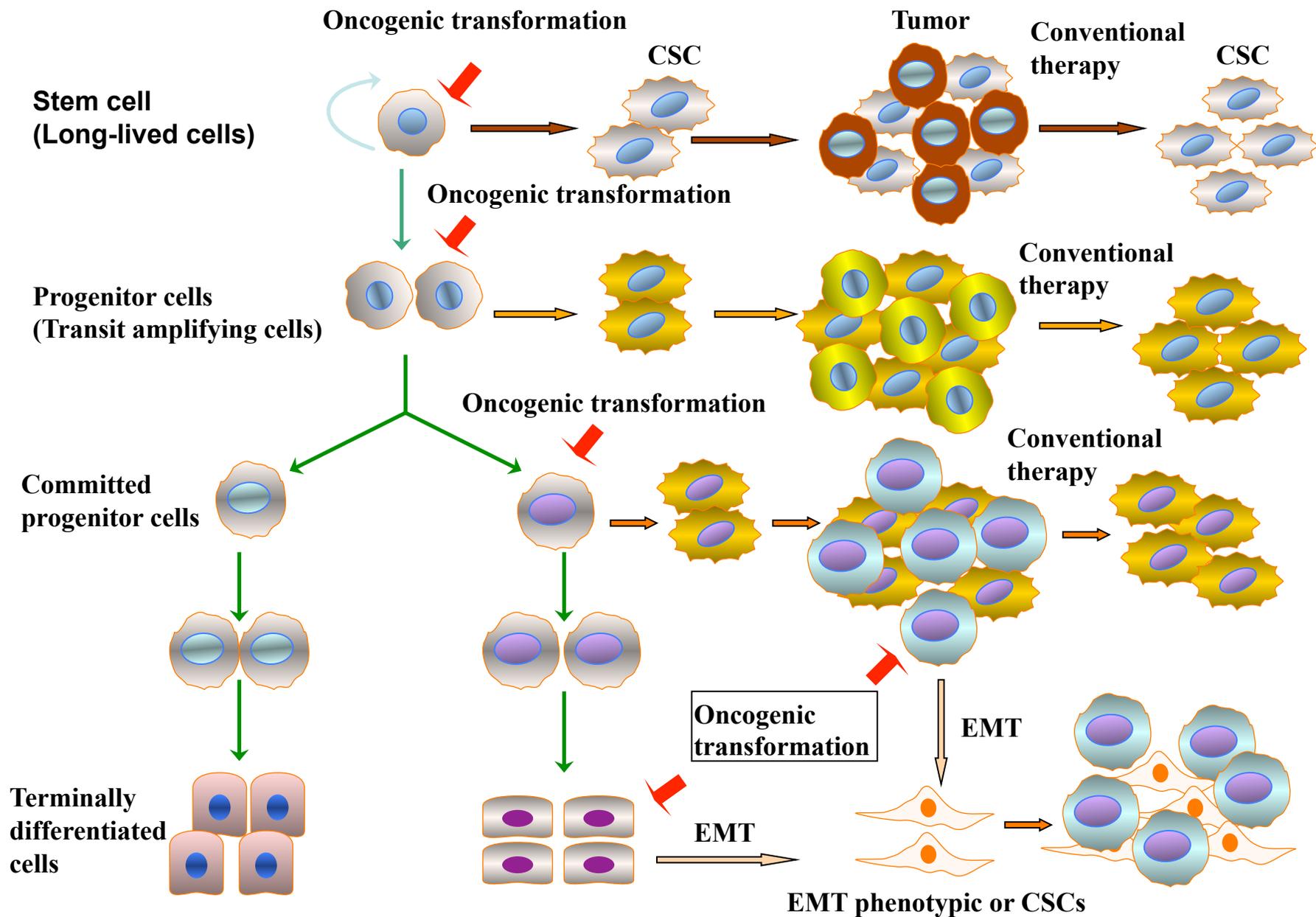
Therapeutic implications of Cancer Stem Cells



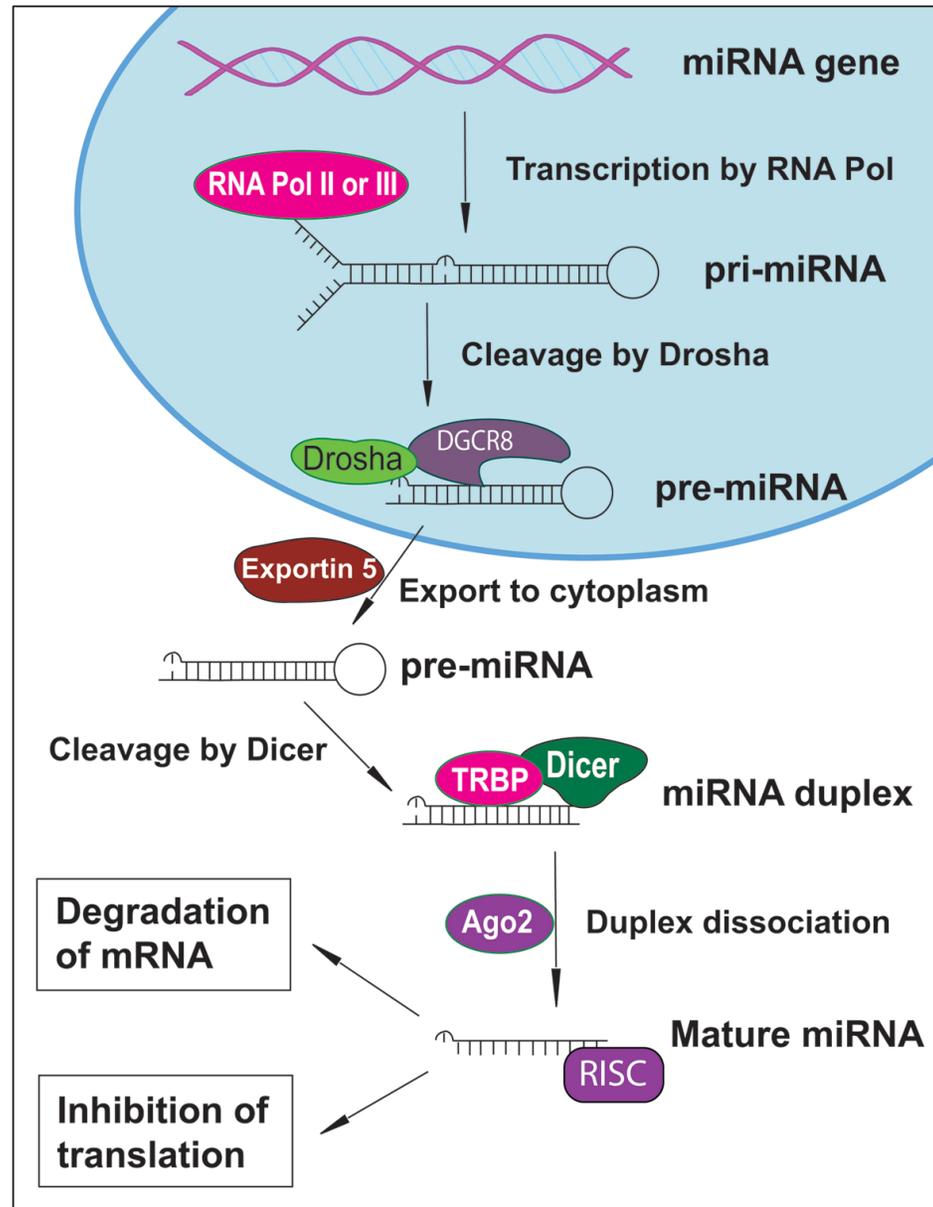
- Most therapies fail to consider the difference in drug sensitivities of cancer stem cells compared to their non-tumorigenic progeny.
- Most therapies target rapidly proliferating non-tumorigenic cells and spare the relatively quiescent cancer stem cells.

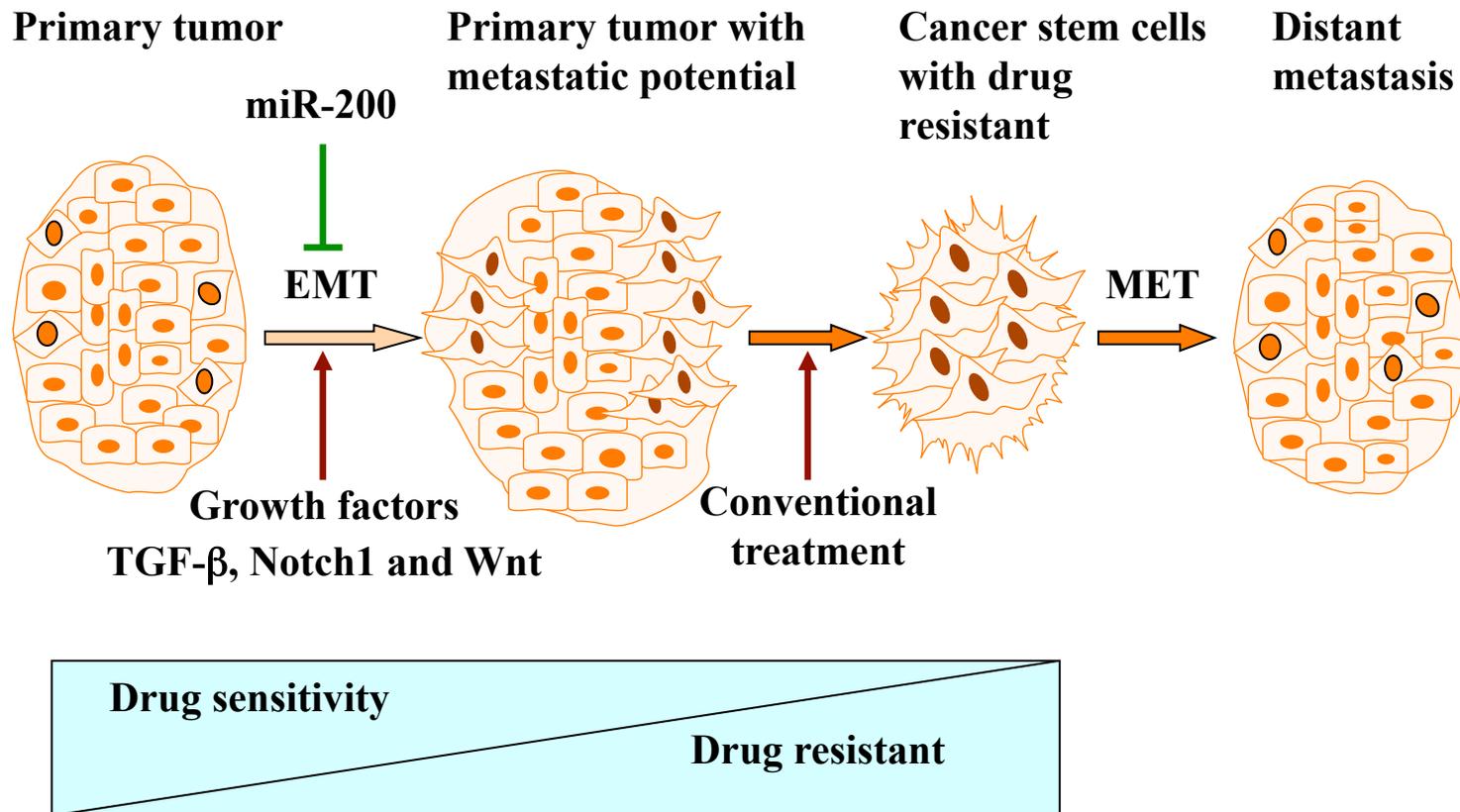






Biogenesis of microRNAs (miRNAs)





Loss of miR-200, Let-7 and miR-34 family are highly prevalent in aggressive tumors, and thus up-regulation or re-expression of these miRNAs by natural agents (nutraceuticals) would become a novel strategy for eradicating tumors, which will prevent tumor recurrence, and this will improve overall survival.

A close-up painting of a large, vibrant red flower, possibly a poppy, with a dark, textured center. The petals are layered and show various shades of red and orange. The background is a light, pale blue-grey. The text "How can we deregulate miRNAs?" is overlaid in white, bold, sans-serif font in the upper-middle part of the image.

**How can we deregulate
miRNAs?**

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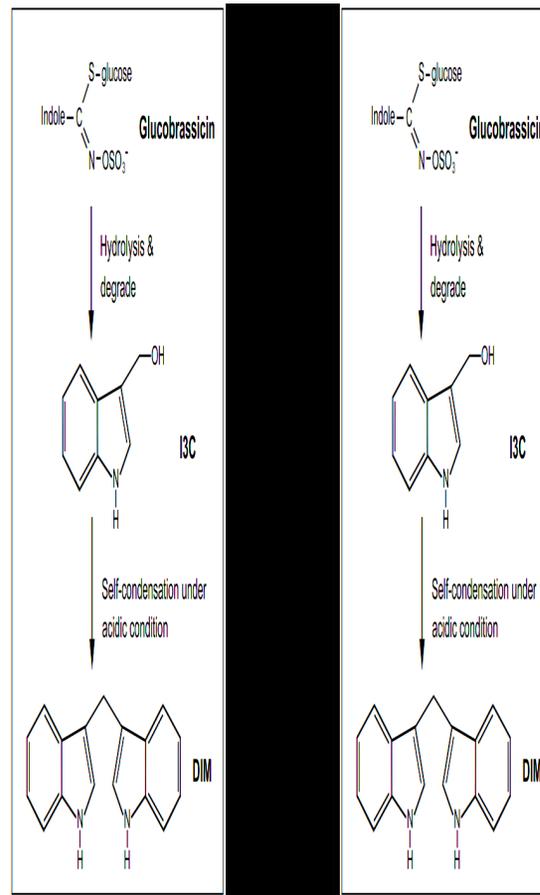
Fazlul H. Sarkar *Editor*

Nutraceuticals and Cancer

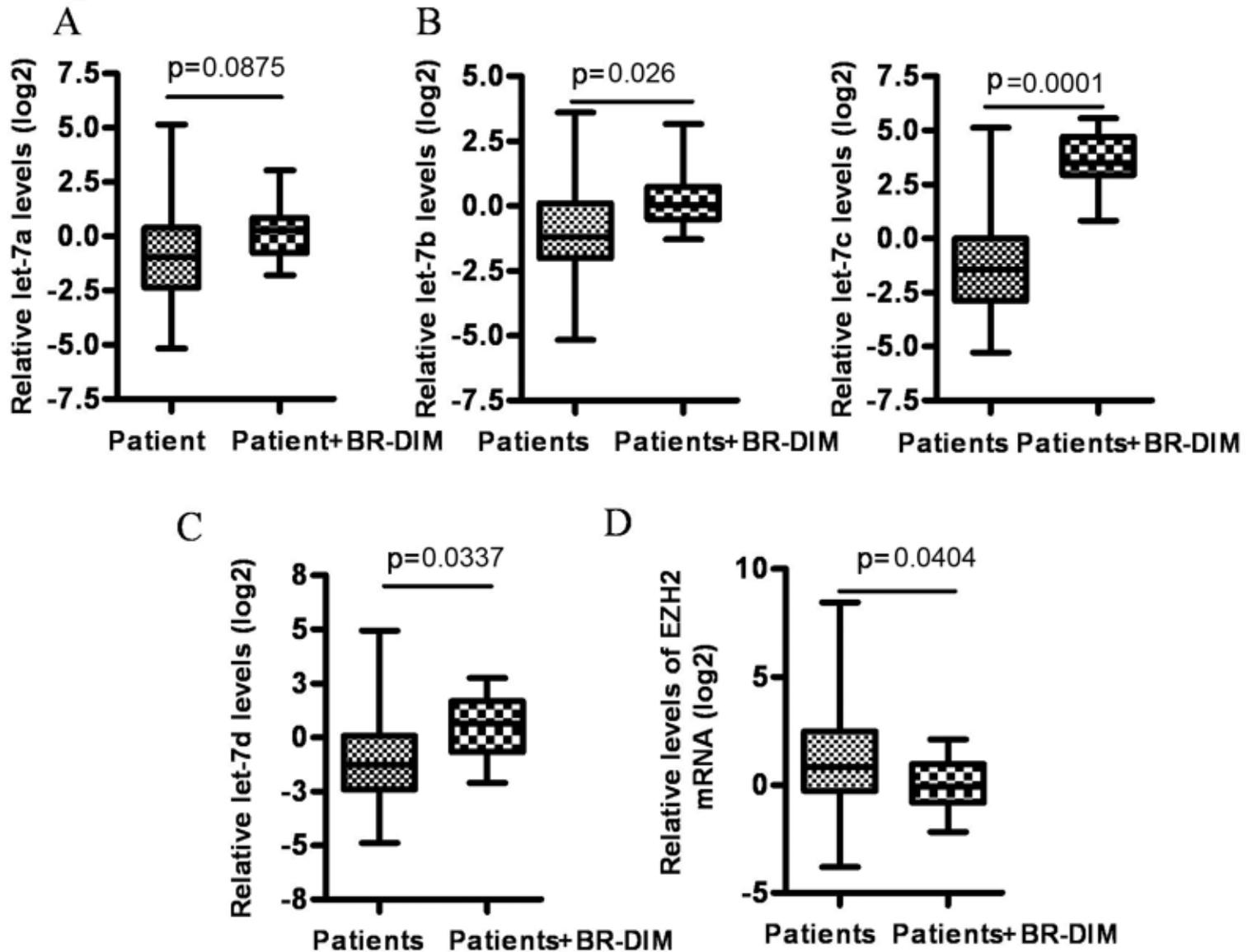
 Springer

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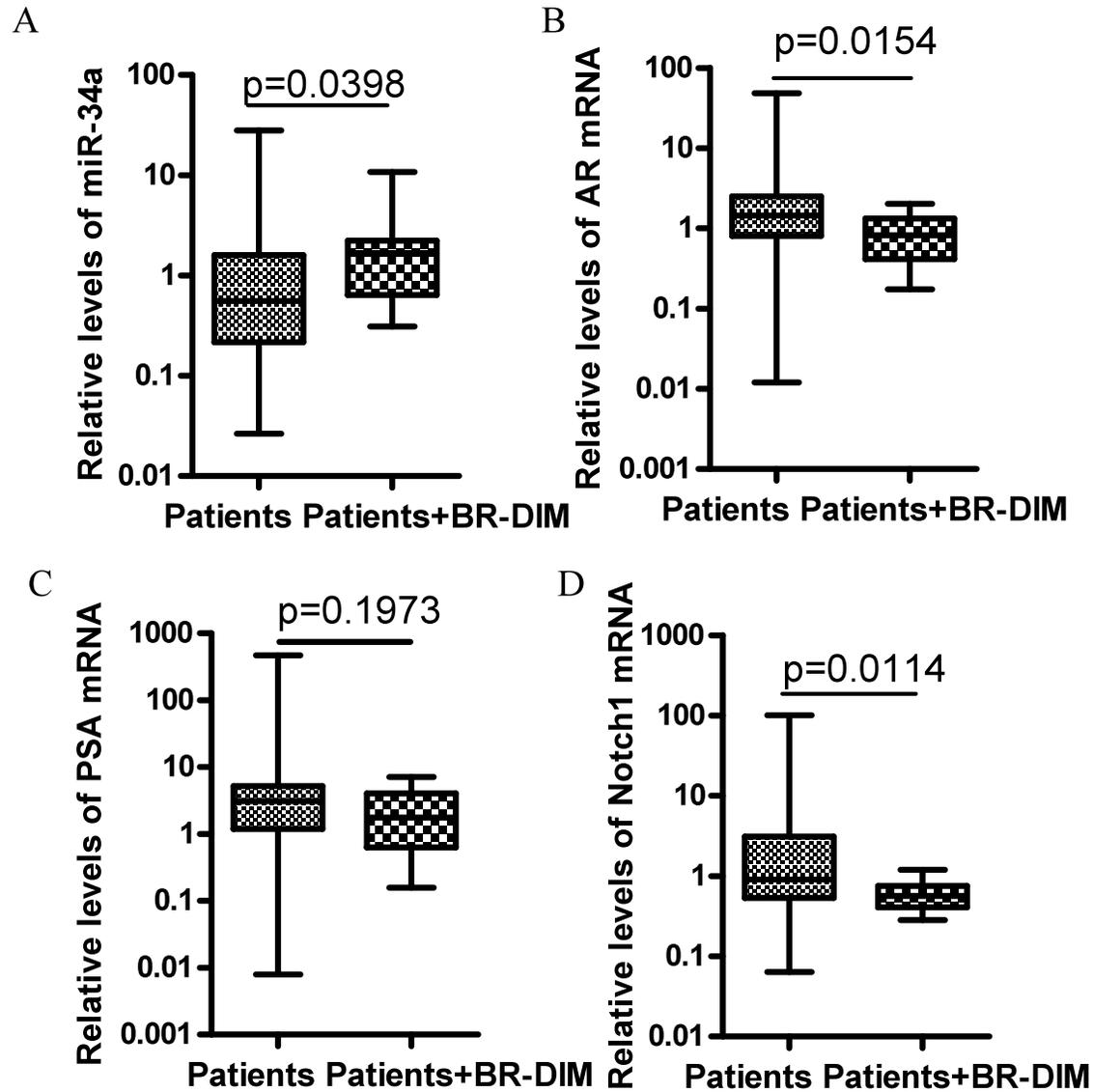
Indole and its *in vivo* metabolite (BR-DIM)



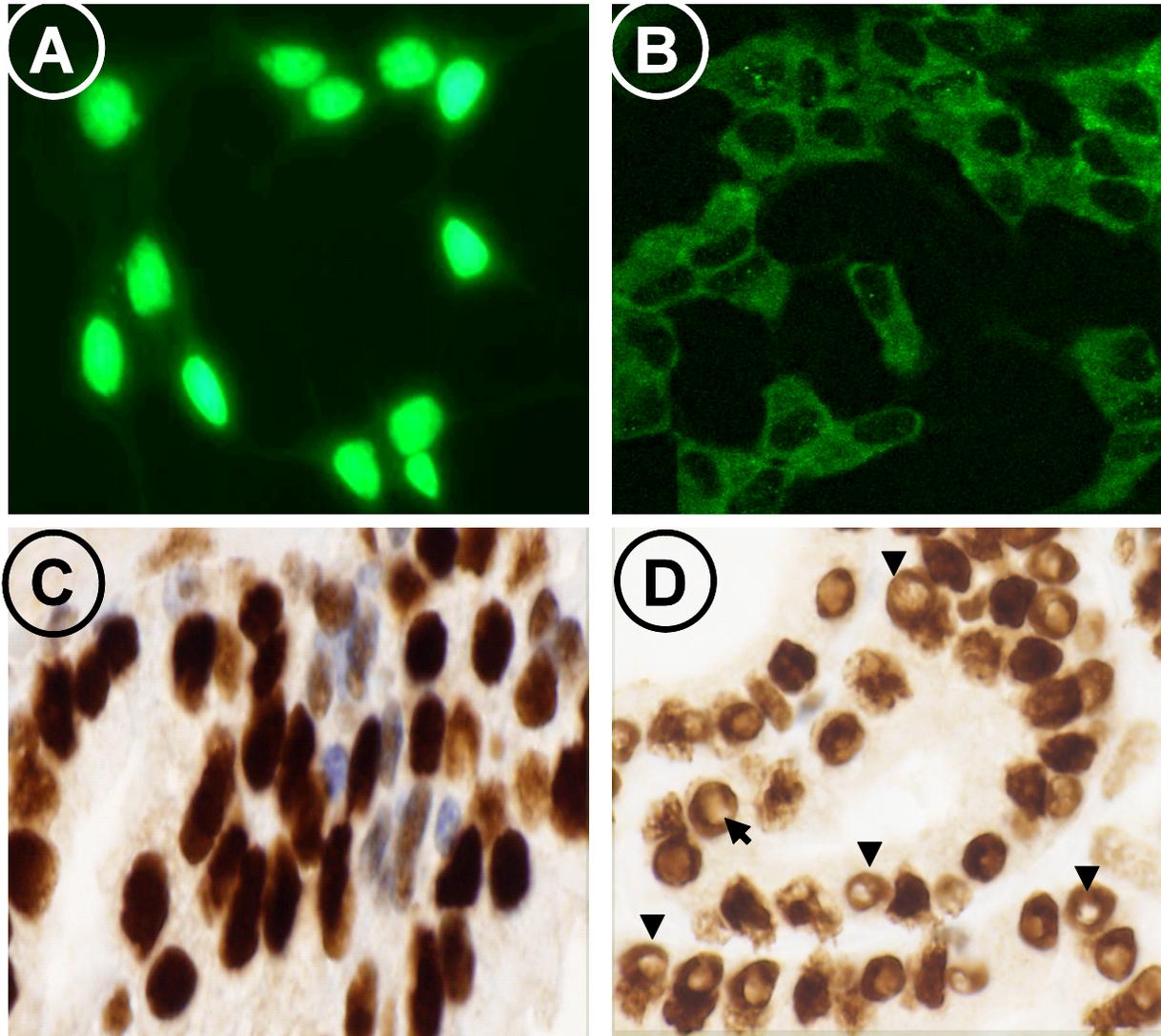
Re-expression of miRNAs in prostate cancer patients by BR-DIM intervention



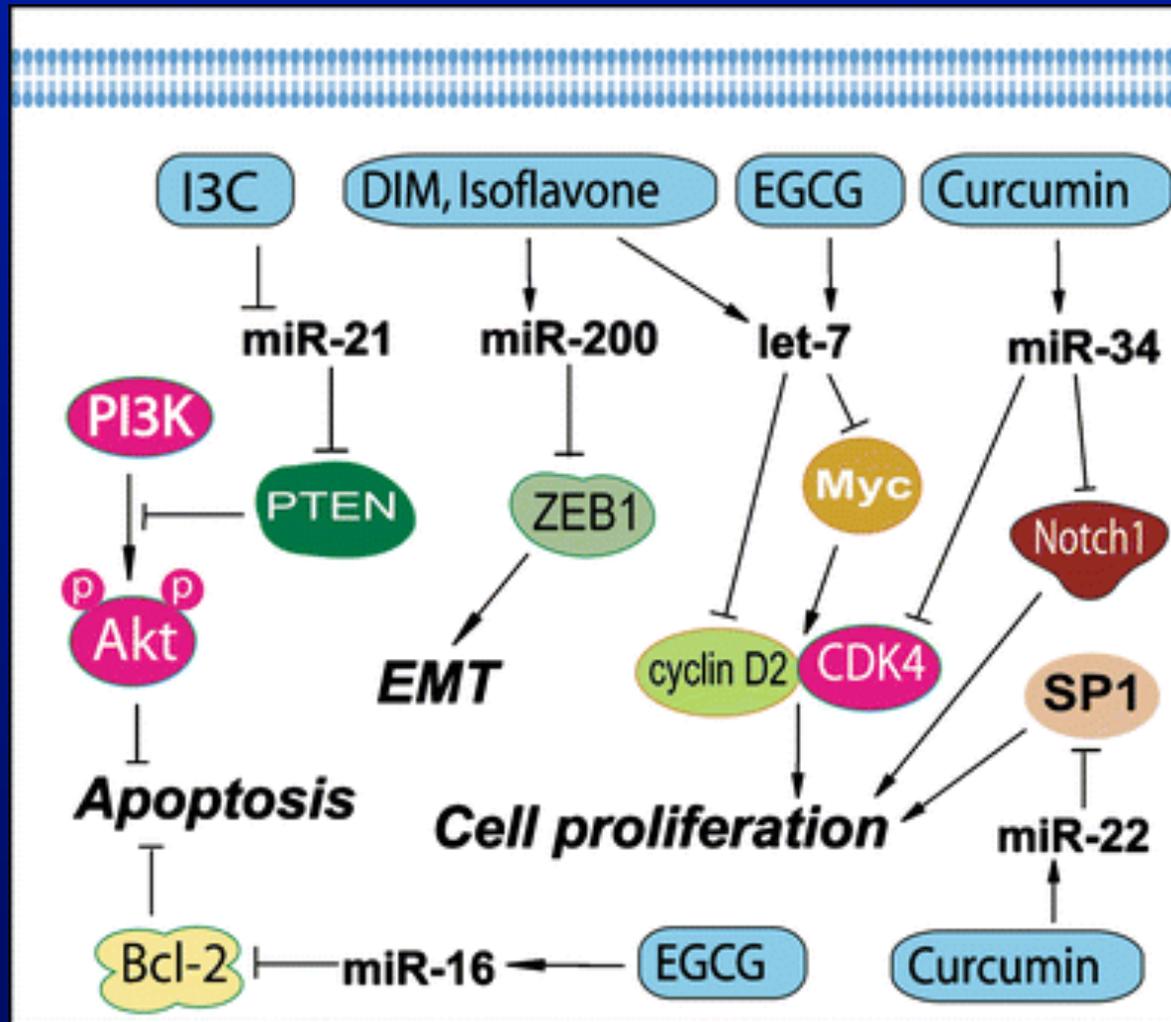
Re-expression of miRNAs in prostate cancer patients by BR-DIM intervention



Down-regulation of AR and its nuclear exclusion by BR-DIM intervention in prostate cancer patients

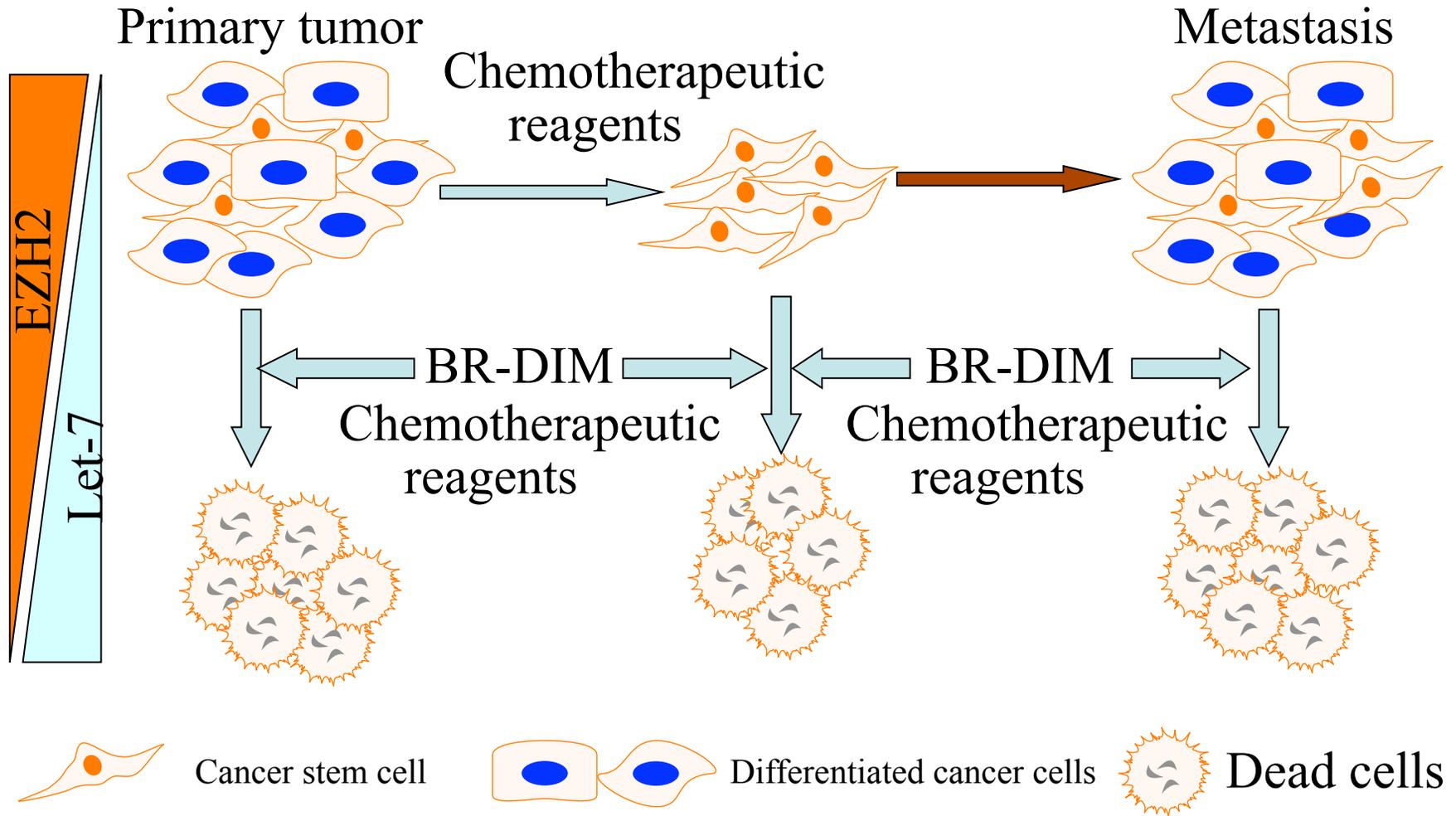


Natural agents alter the expression of miRNAs that are known to regulate cellular signaling and biological behavior



Sarkar FH et al. *Pharmaceutical research* 2010 June 27: 1027-41

Summary







**Thank you for your
attention and
inducting me in the
Academy of Scholars**