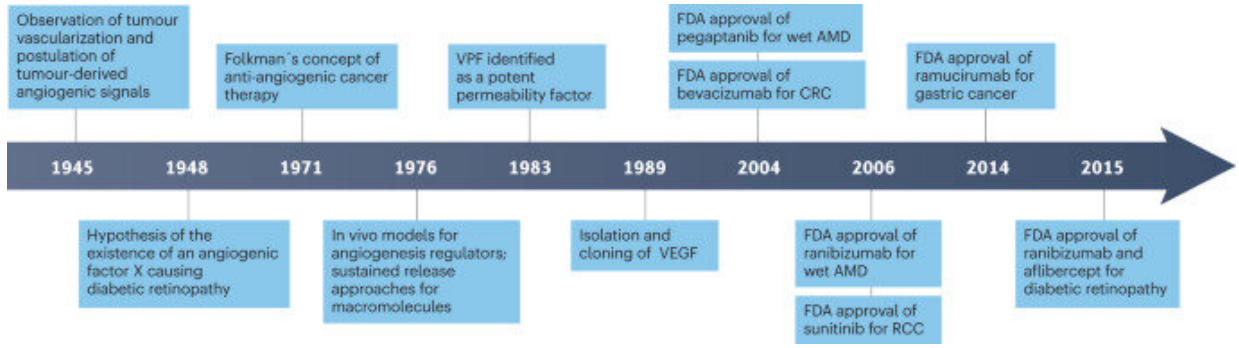
Review article focuses on the development of the next generation of drugs

April 14 2023



Targeting angiogenesis in oncology, ophthalmology and beyond. Credit: *Nature Reviews Drug Discovery* (2023). DOI: 10.1038/s41573-023-00671-z

In a recently published article in *Nature Reviews Drug Discovery*, Professor Yihai Cao's research group at the Department of Microbiology, Tumor and Cell Biology, charts information about drug development for the treatment of a number of human diseases by targeting new blood vessel formation.

"Although the article focuses on the development of the next generation of new drugs that are likely more effective, it also provides an overview of more than a half-century of angiogenesis research. From preclinical research to clinical successes ranging from proposing new concepts, identification of key angiogenic molecules, understanding mechanisms

of angiogenesis in various diseases, preclinical validation of antiangiogenic therapy to the successful treatment of various human diseases- including cancer and eye disease," corresponding author Professor Yihai Cao says.

The key messages of the article are:

- Overview of more than 50-year angiogenesis research and key milestones
- Key signaling pathways of angiogenic factors in disease
- Targeting angiogenesis is an exciting and effective approach for the treatment of a number of diseases
- Antiangiogenic drugs constitute an important therapeutic modality the for treatment of a broad spectrum of cancers in human patients
- Emerging new therapeutic targets for drug development
- Next generation of antiangiogenic drugs with more potent therapeutic effects
- "Miracle" and very effective drugs for the treatment of a number of ophthalmology diseases, including age-related macular disease, diabetic retinopathy, and diabetic macular edema
- Emerging new therapeutic implications for treating other diseases, including metabolic disease, inflammation, and infectious disease
- Combinations of antiangiogenic therapy with other therapeutic modalities for the treatment of cancer, including conventional therapy and immunotherapy often produce additive and even synergistic effects
- Clinical challenging issues of antiangiogenic therapy
- Strategies for improvement of therapeutic benefits in human patients

"The knowledge embedded in this article provides new strategies for

future research directions in various fields, including basic research, translational research, and drug development. It also provides guidelines for clinicians to optimally and rationally utilize angiogenesis drugs for the treatment of cancer and ocular disease. In particular, young scientists should be inspired and become interested in this exciting research area to resolve clinical problems," Yihai Cao says.

More information: Yihai Cao et al, Targeting angiogenesis in oncology, ophthalmology and beyond, *Nature Reviews Drug Discovery* (2023). DOI: 10.1038/s41573-023-00671-z

Provided by Karolinska Institutet