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Compensatory angiogenesis and tumor refractoriness

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Since the establishment of tumor angiogenesis as a therapeutic target, an excitement in developing the anti-angiogenic agents was resulted in tailoring a humanized monoclonal antibody (Bevacizumab) against vascular endothelial growth factor (VEGF): A key factor in recruiting angiogenesis. The past three decades' research in the area of angiogenesis also invented a series of novel and effective anti-angiogenic agents targeting the VEGF signaling axis. Despite the demonstrable clinical benefits of anti-angiogenic therapy, the preclinical and clinical data of the current therapeutic settings clearly indicate the transient efficacy, restoration of tumor progression and aggressive recurrence of tumor invasion after the withdrawal of anti-angiogenic therapy. Therefore, the impact of this therapeutic regime on improving overall survival of patients has been disappointing in clinic. The recent advances in patho-physiology of tumor angiogenesis and related molecular and cellular under-pinning attributed the conspiracy of compensatory angiogenic pathways in conferring evasive and intrinsic tumor resistance to anti-angiogenic agents. The understandings of how these pathways functionally cross-talk for sustaining tumor angiogenesis during VEGF blockade is essential and perhaps may act as a basic prerequisite for designing novel therapeutic strategies to combat the growing arrogance of tumors toward anti-angiogenic agents. An elaborative discourse on major compensatory angiogenic pathways operating at cellular and molecular levels and their attributes with resistance to anti-angiogenic agents along with strategic opinions on future setting in targeting tumor angiogenesis will be discussed.

Biography

Rajesh N Gacche has completed M. Sc. SET, CSIR NET-JRF, B.G.L., LLB., PhD. At present, he is working as a Professor in Tumor Biology Laboratory, School of Life Sciences, S. R. T. M. University, Nanded (Maharashtra).

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