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Fractal Geometry: a helpful way for looking cancer complexity

Cancer research has undergone radical changes in the past few years. Amount of information both at the basic and clinical levels is no longer the issue. Rather, how to handle this information has become the major obstacle to progress. System biology is the latest fashion in cancer biology, driven by advances in technology that have provided us with a suite of omics techniques. It can be seen as a conceptual approach to biological research that combines reductionist (parts) and integrationist (interactions) research, to understand the nature and maintenance of entities. In geometrical terms, cancerous lesions can be depicted as fractal entities mainly characterized by their irregular shape, self-similar structure, scaling relationship and non-integer or fractal dimension. It is indubitable that The Fractal Geometry of Nature has provided an innovative paradigm, a novel epistemological approach for interpreting the anatomical world. It is also known that mathematical methods and their derivatives have proved to be possible and practical in oncology. Viewing cancer as a system that is dynamically complex in time and space will probably reveal more about its underlying behavioural characteristics. It is encouraging that mathematicians, biologists and clinicians contribute together towards a common quantitative understanding of cancer complexity.