Review of: "[Perspective] Is There Any Reason to Stay in Human Genetic Societies as Cytogeneticists?"

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Potential competing interests: No potential competing interests to declare.

I applaud the author for writing this Perspective.

The disappearance of cytogenetics as a separate field of science and including it in pathology exemplifies a negative trend in the modern science of creating narrow specialists lacking general biology knowledge but highly skilled in the newly invented techniques. Published studies use modern techniques such as single-cell sequencing, ChiP assays, organoids, knockouts, nanotechnology, bioinformatics, etc., concentrating on one chosen molecular pathway or one type of cell but often lacking relevance to the general biological context.

For the layperson and uninformed audience, cytogenetics is limited to karyotyping, chromosome banding, identification of chromosomes and chromosomal aberrations, and genome sequencing. Such a simplistic understanding of cytogenetics may justify its placement within a pathology field. However, cytogenetics is so much more. For example, it is a three-dimensional structure of chromatin and its function in gene expression and its regulatory pathways, mechanisms underlying formation and function of chromosome territories i. e., the regions of the nucleus preferentially occupied by specific chromosomes, and the role of nuclear actin in chromatin compaction, transcription, and chromatin placement within the nucleus, and also the mechanisms of heredity, chromosome elimination, chromosome amplification, etc.

In my opinion, the submitted Perspective would benefit from the 1-2 paragraph detailed description of the areas of modern cytogenetics studies and why they warrant the treatment of cytogenetics as a separate field of biological studies.