



Themed Collection

Beyond Pathway Inhibition: Restoration of Optimal Biological States in Cancer Therapy

Call for papers

Submission Deadline: 30 June 2027



Summary

Cancer biology has traditionally been interpreted through linear paradigms in which tumor progression results from the activation of oncogenic pathways and therapeutic benefit is achieved through their inhibition. However, many biological regulators involved in cancer exhibit non-linear behaviors, including Bell-shaped, U-shaped, and J-shaped relationships, hormetic responses, dual roles, contextual paradoxes, and switch-like transitions. Such phenomena may involve selenium, essential metals (zinc, copper, iron, magnesium, and manganese), therapeutic metals (such as gallium and rhenium), growth factors, cytokines, reactive oxygen species, metabolic pathways, and immune mediators.

These observations suggest that cancer may not simply arise from excessive activation or suppression of specific pathways, but also from the disruption of optimal biological ranges and homeostatic regulatory networks. This concept may extend to major signaling pathways, including EGFR, PI3K, AKT, mTOR, MAPK, TGF- β , JAK/STAT, and NF- κ B, whose biological effects frequently depend on context, intensity, timing, and cellular state.

This Special Issue explores whether the most effective anticancer strategies are those that maximally inhibit molecular targets or those that restore optimal biological states capable of sustaining durable tumor control. Particular attention will be given to therapeutic reprogramming, adaptive dosing strategies, immunotherapeutic approaches, macrophage polarization, tumor microenvironment remodeling, and the regulation of cysteine proteases, with the ultimate goal of restoring effective antitumor homeostasis while limiting resistance, immune escape, and treatment-related toxicity.

Editors:

Dr. Philippe Collery

Affiliation: Society for the Coordination of Therapeutic Researches, Algajola, France. Email: philippe.collery@gmail.com

Dr. Mingxing Wei

Affiliation: Cellvax SAS, Villejuif, France. Email: ming@cellvax-pharma.com

Dr. Patrick Squiban

Affiliation: Selvionyx Pharma, France. Email: psquiban@tmacademy.org