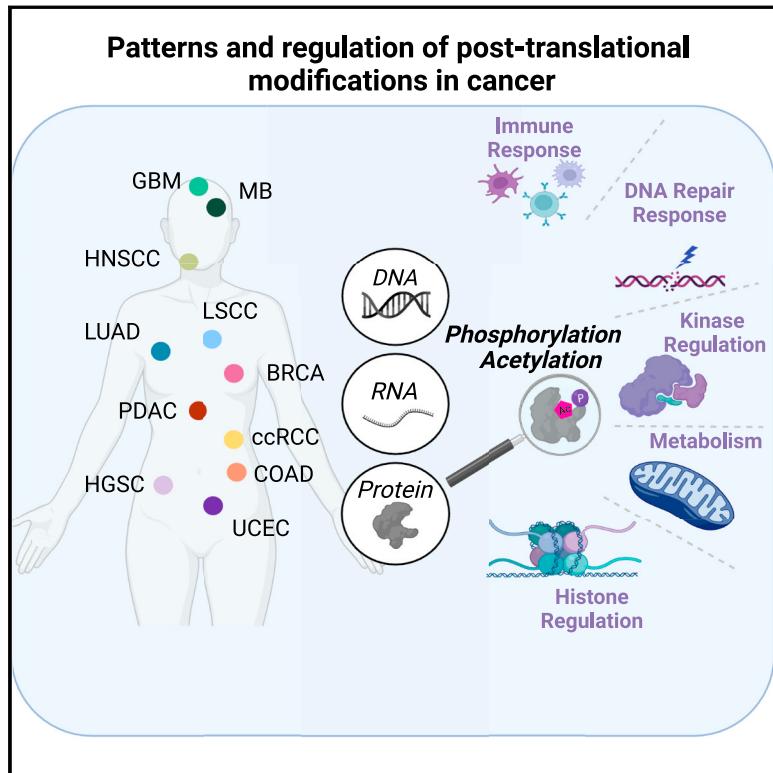


# Pan-cancer analysis of post-translational modifications reveals shared patterns of protein regulation

## Graphical abstract



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## In brief

An analytical resource of post-translational modifications from over 1,000 patients across 11 cancer types reveals pan-cancer changes involved in hallmark cancer processes and reveals potential new therapeutic avenues.

## Highlights

- Unsupervised clustering reveals 33 pan-cancer multi-omic signatures
- PTM dysregulation is associated with distinct DNA damage repair mechanisms
- Changes in acetylation of metabolic proteins correlate with tumor immune state
- Phosphorylation of Thr/Ser kinases is affected by proximal acetylation



## DECLARATION OF INTERESTS

Y.G. is a consultant for Oriel Research Therapeutics. T.M.Y. is a co-founder, stockholder, and on the board of directors of DESTROKE, Inc., an early-stage start-up developing mobile technology for automated clinical stroke detection. J.L.J. has received consulting fees from Scorpion Therapeutics and Volastra Therapeutics. Y.E.M. is a consultant for ForseeGenomics and is also an inventor on patent applications filed by the Broad Institute related to MSMuTect, MSMutSig, and MSIDetect. N.J.H. is a consultant for MorphoSys. F.A. is an inventor on a patent application related to SignatureAnalyzer-GPU and has been an employee of Illumina, Inc., since 8 November 2021. L.C.C. is a founder and member of the board of directors of Agios Pharmaceuticals and is a founder of Petra Pharmaceuticals. L.C.C. is an inventor on patents (pending) for Combination Therapy for PI3K-associated Disease or Disorder, and The Identification of Therapeutic Interventions to Improve Response to PI3K Inhibitors for Cancer Treatment. L.C.C. is a co-founder and shareholder in Faeth Therapeutics. G.G. receives research funds from IBM, Pharmacyclics, and Ultima Genomics, and is also an inventor on patent applications filed by the Broad Institute related to MSMuTect, MSMutSig, POLYSOLVER, SignatureAnalyzer-GPU, MSIDetect, and MinimuMM-Seq. He is also a founder, consultant, and privately held equity in Scorpion Therapeutics.

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