# Mutation in HGF Suppresses Cancer

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## Background

All biological impacts of HGF in cell proliferation are triggered by binding of HGF to its cell surface receptor, cellular mesenchymal-epidermal transition (c-MET). HGF/c-MET signaling induces multifunctional cellular responses. Dysregulation of HGF/c-MET signaling cascade can lead to tumorigenesis by transforming normal cells to tumor cells. We mutated core cysteine residues in HGF and then will evaluate stability of individual variants in protein level.

## Materials and Methods

Materials:

- SDS (sodium dodecyl sulfate)
- Micropipette
- lysate
- gel
- nitrocellulose membrane
- RIPA buffer
- MW marker
- Distilled water
- near-ir CF buffer
- hot plate
- methanol
- liquid nitrogen
- heating block
- ice

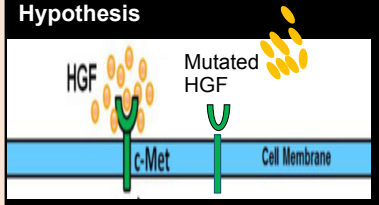
Procedure:

- Find concentrations using a mass spectrometer
- Measure out equal lysate volumes using micropipette
- Use SDS to denature the lysate into its primary structure: linear
- Insert a dye
- Use methanol to inflict a negative charge on the lysate
- Do gel electrophoresis
- Use the blotting sandwich

## Scientists at work

## Results

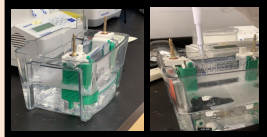
### Hypothesis




C70A, C74A, C84A,C96A

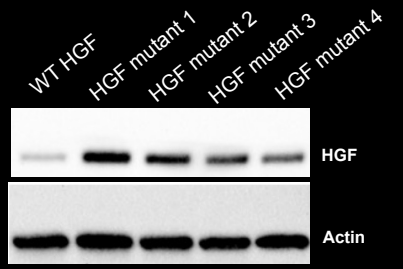
Degradation

### Western Blot

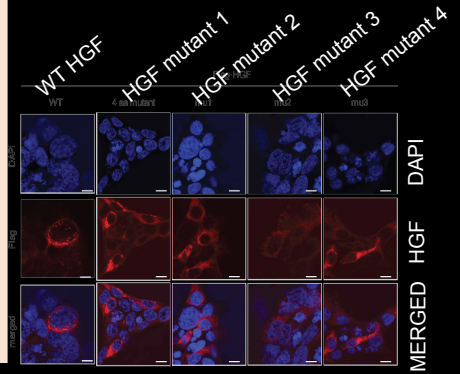


Insert a western apparatus picture

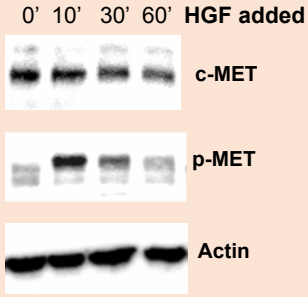
### Conserved PAN domain modulate HGF stability in human cells




### PAN domain determines proper localization of HGF to perinucleus

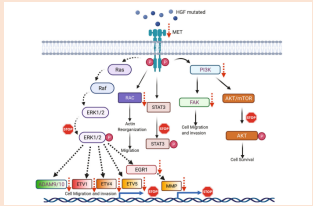



### PAN domain is essential for p-MET signaling




Mutation of the conserved cysteines in HGF PAN domain blocks HGF induced c-MET signaling. 293T cells were stimulated with HGF WT and proteins for indicated amount of time. Cells were harvested and immunoblot analysis shows the absence of phosphorylation for MET

### Conclusion



**Model showing the essential role of PAN domain in immunity**

PAN domain provides the catalytic core to HGF for c-MET interaction leading towards initiation of the entire downstream HGF/c-MET axis. Alteration in conserved cysteine residues blocks the activation of several transcription factors and effector molecules which otherwise stimulate cell migration, cell invasion, proliferation, and cell motility.

## Acknowledgements

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