



# Antigen Identification using Randomized Peptide Libraries

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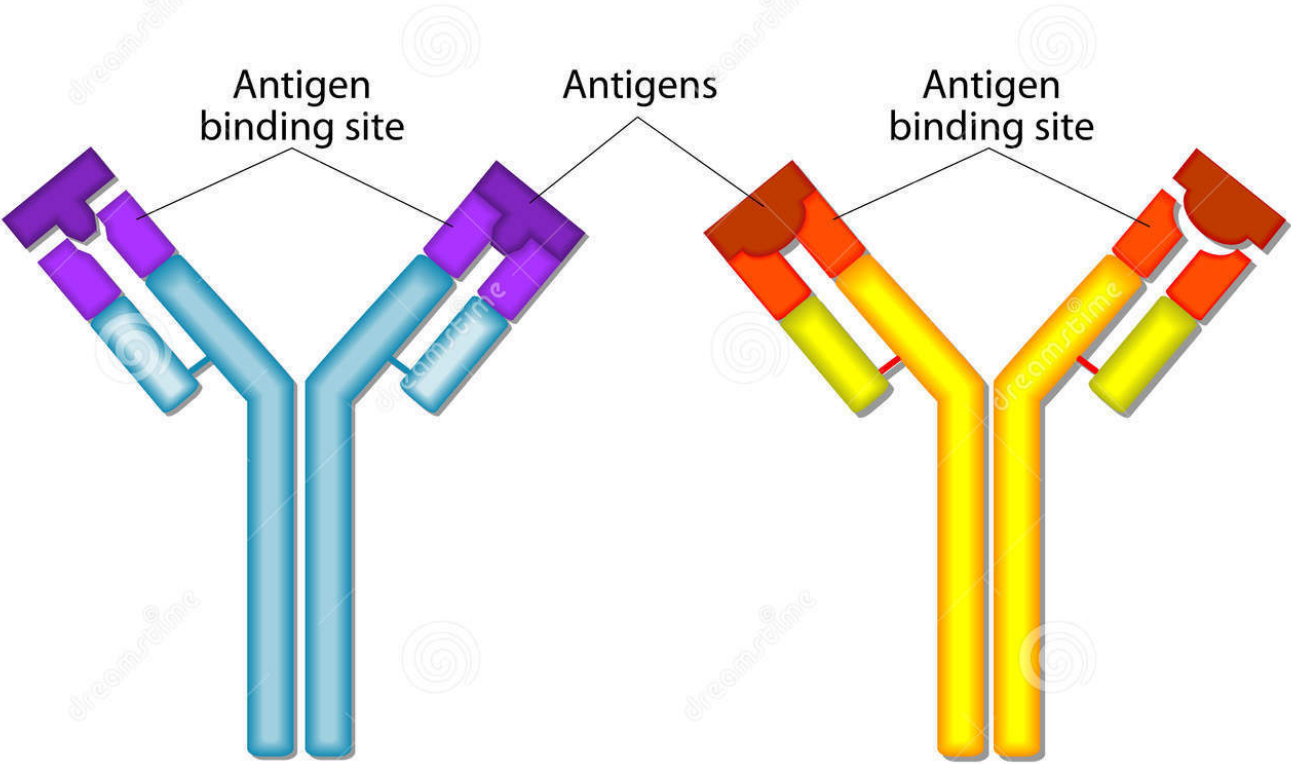
Tony Cahuantzi

Joan Hart

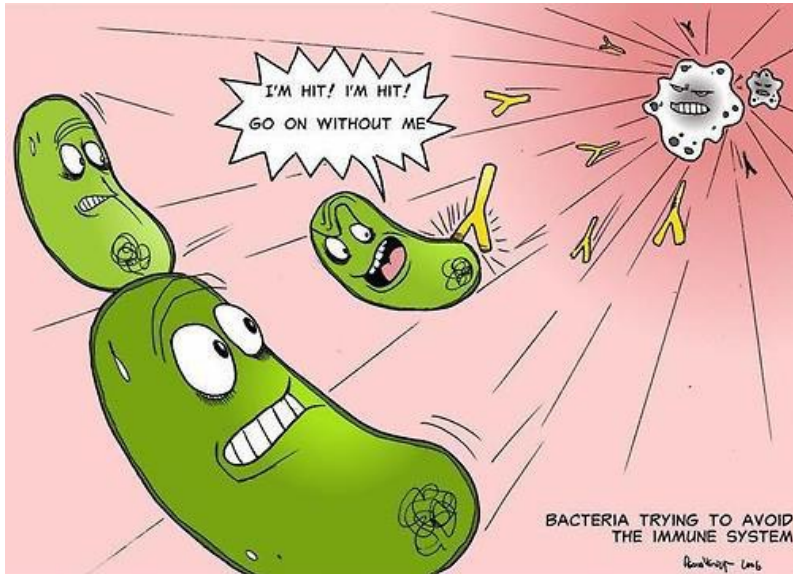
Thuy Tran

<http://condor-csep.cnsi.ucsb.edu/>

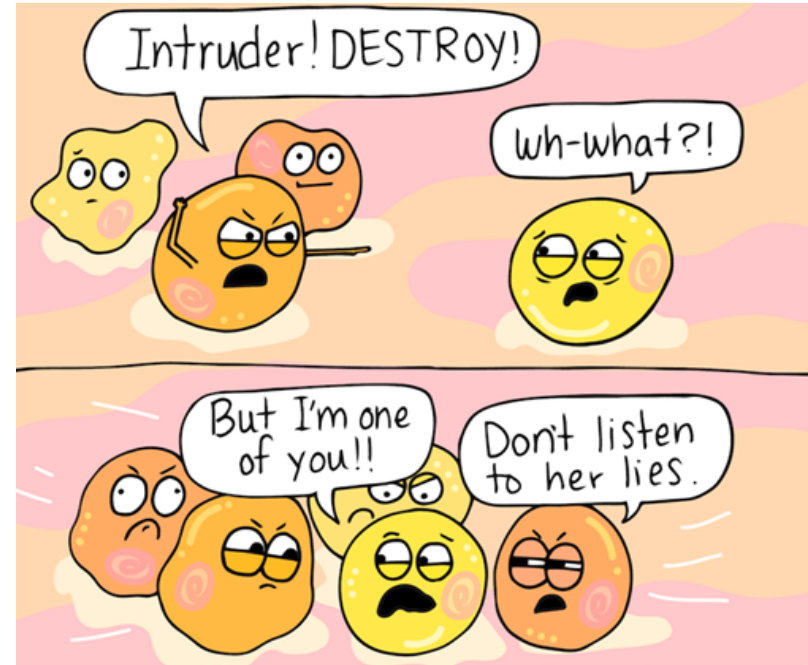
# Antibodies Are Like Molecular Post-It Notes



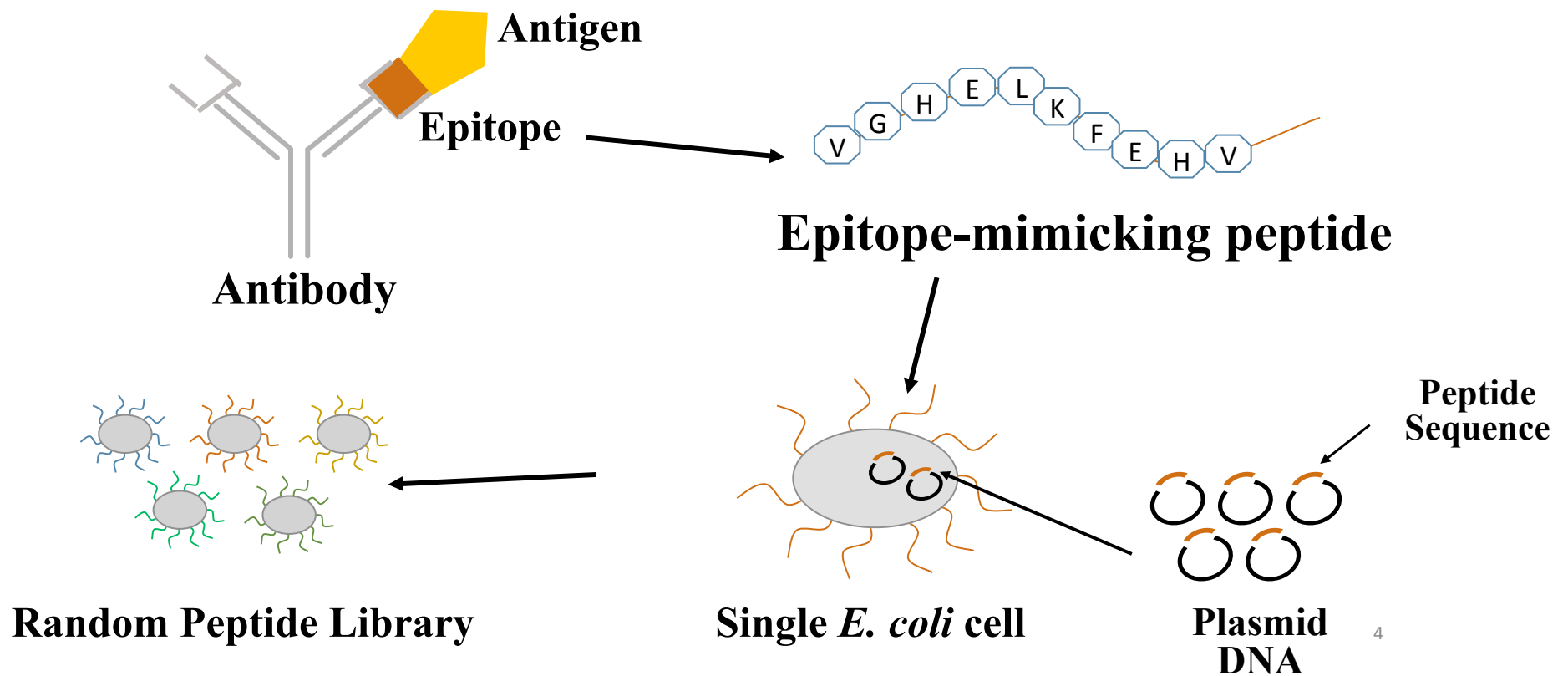
# Immune System



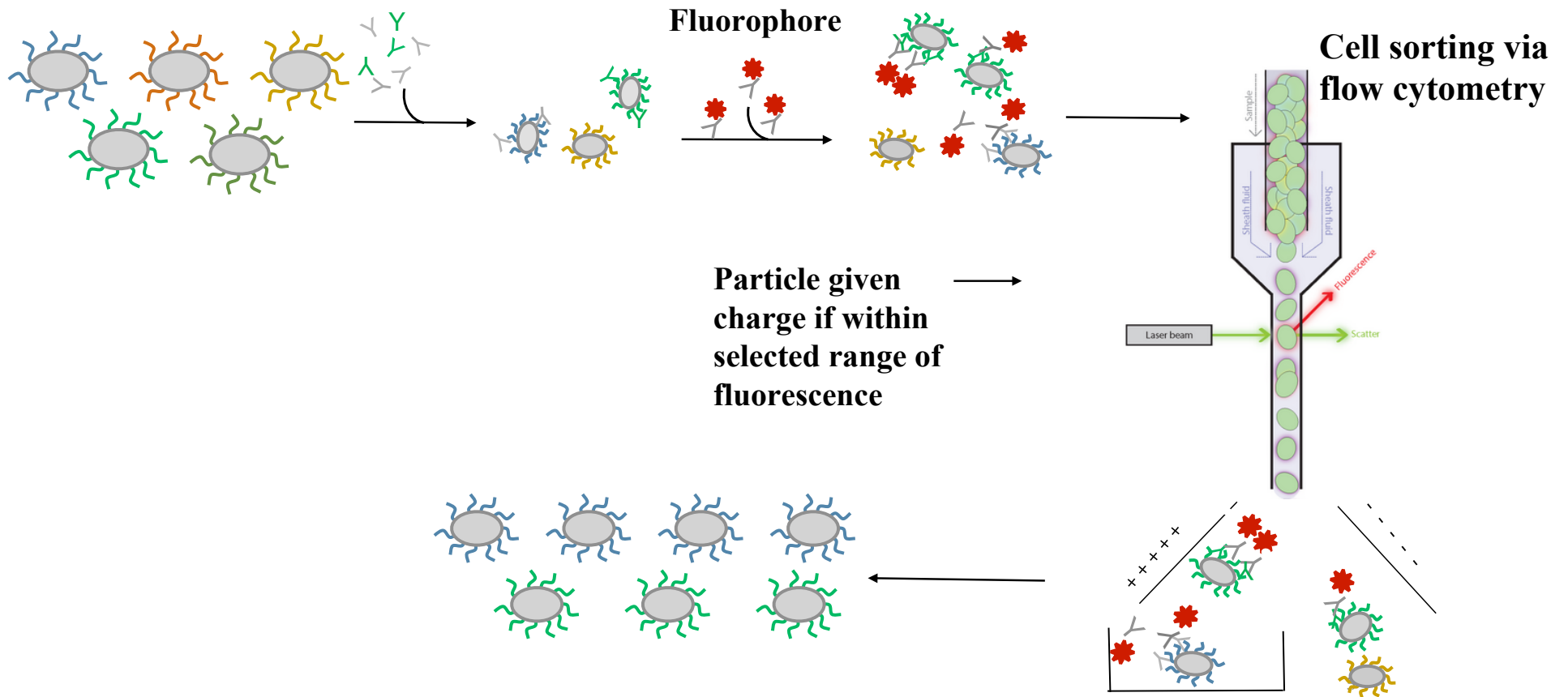
# Autoimmune Diseases



# Generating a Peptide Library



# Using Flow Cytometry in Sorting Cells

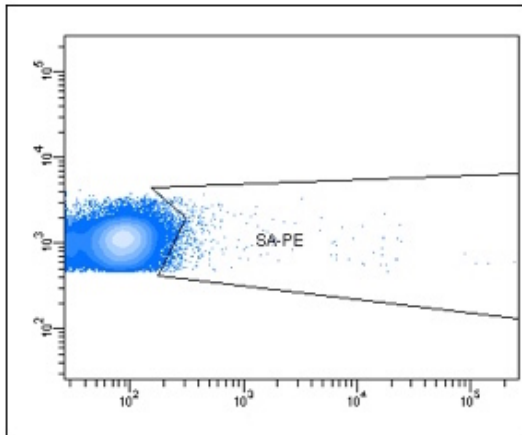


# Increasing Fluorescent Cell Population

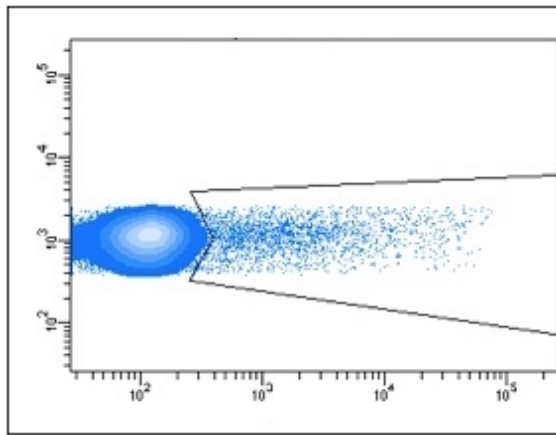
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Side Scatter

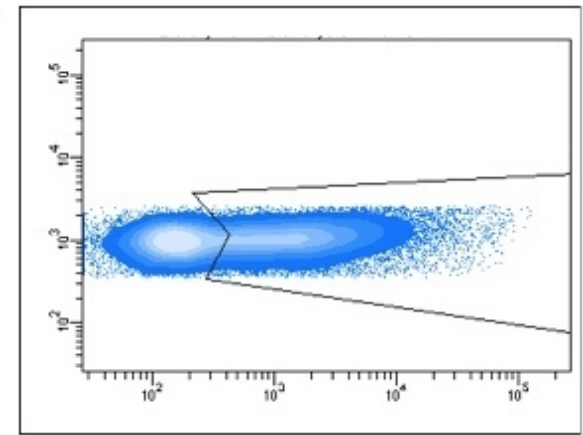
1st Sort



2nd Sort



3rd Sort



Intensifying Fluorescence



# The Antibody Binds to HER2 Receptor

**KDPPFCVA**

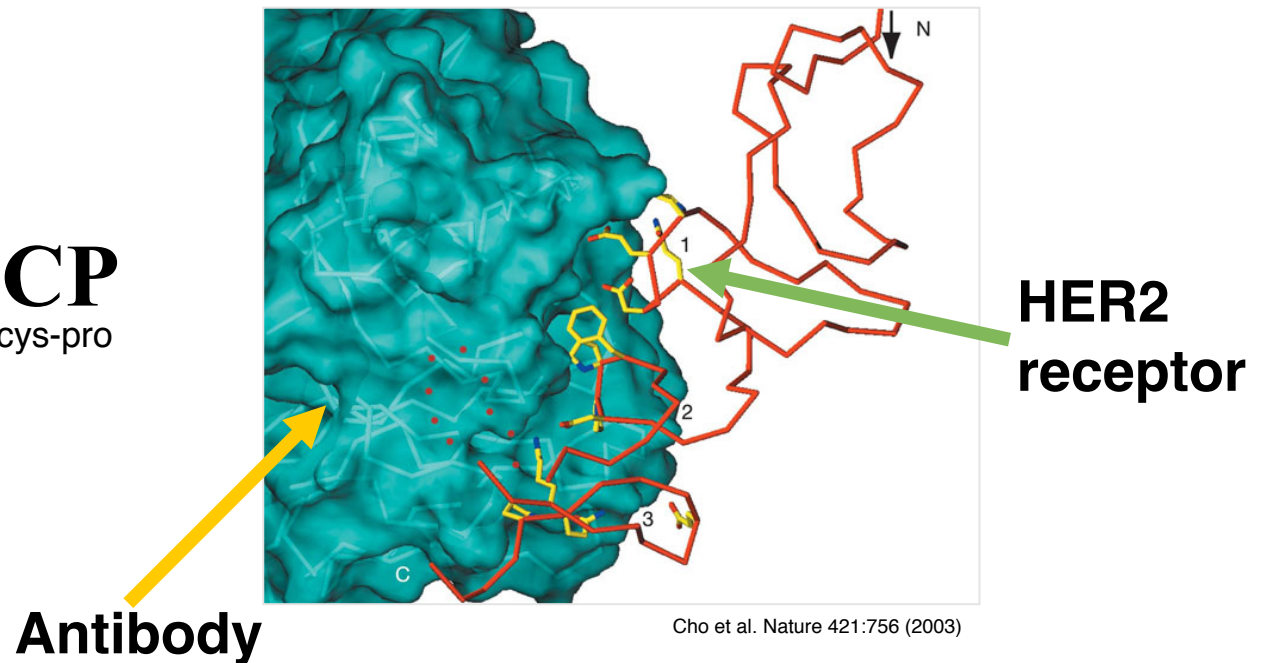
lys-asp-pro-pro-phe-cys-val-ala

**DEEGACQPCP**

asp-glu-glu-gly-ala-cys-gln-pro-cys-pro

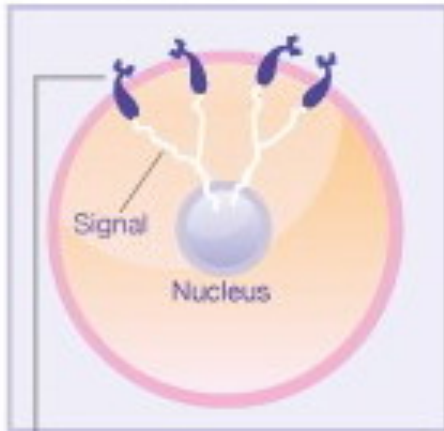
**EADQCV**

glu-ala-asp-gln-cys-val



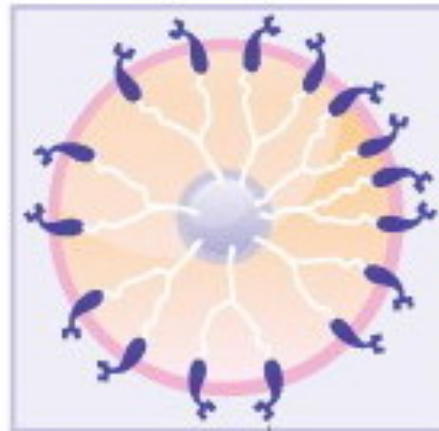
# Antibodies can be Effectively Used in Cancer Therapies

HER2-normal breast cancer cell



HER2 receptors send signals telling cells to grow and divide

HER2+ breast cancer cell



Too many HER2 receptors send more signals, causing cells to grow too quickly

How Herceptin may work



Herceptin may stop the HER2 receptors from signaling the cell to grow

*Image from Genentech*



# Summary

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- Connection antibody/antigen to immune system
- Use of flow cytometry with the peptide libraries
- Discover disease-causing agents

# Acknowledgements

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