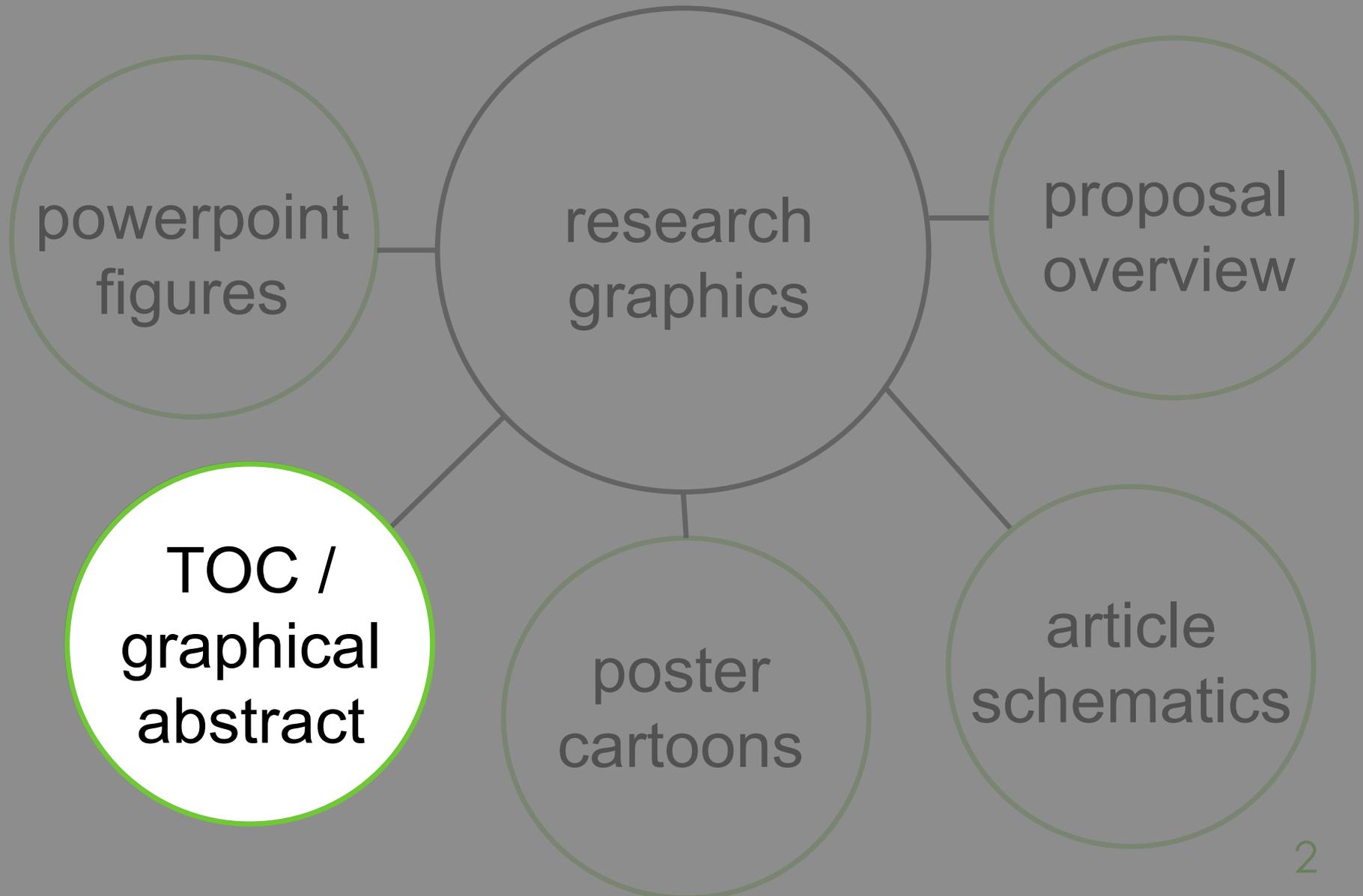


Creating **Digital Illustrations** for Your Research

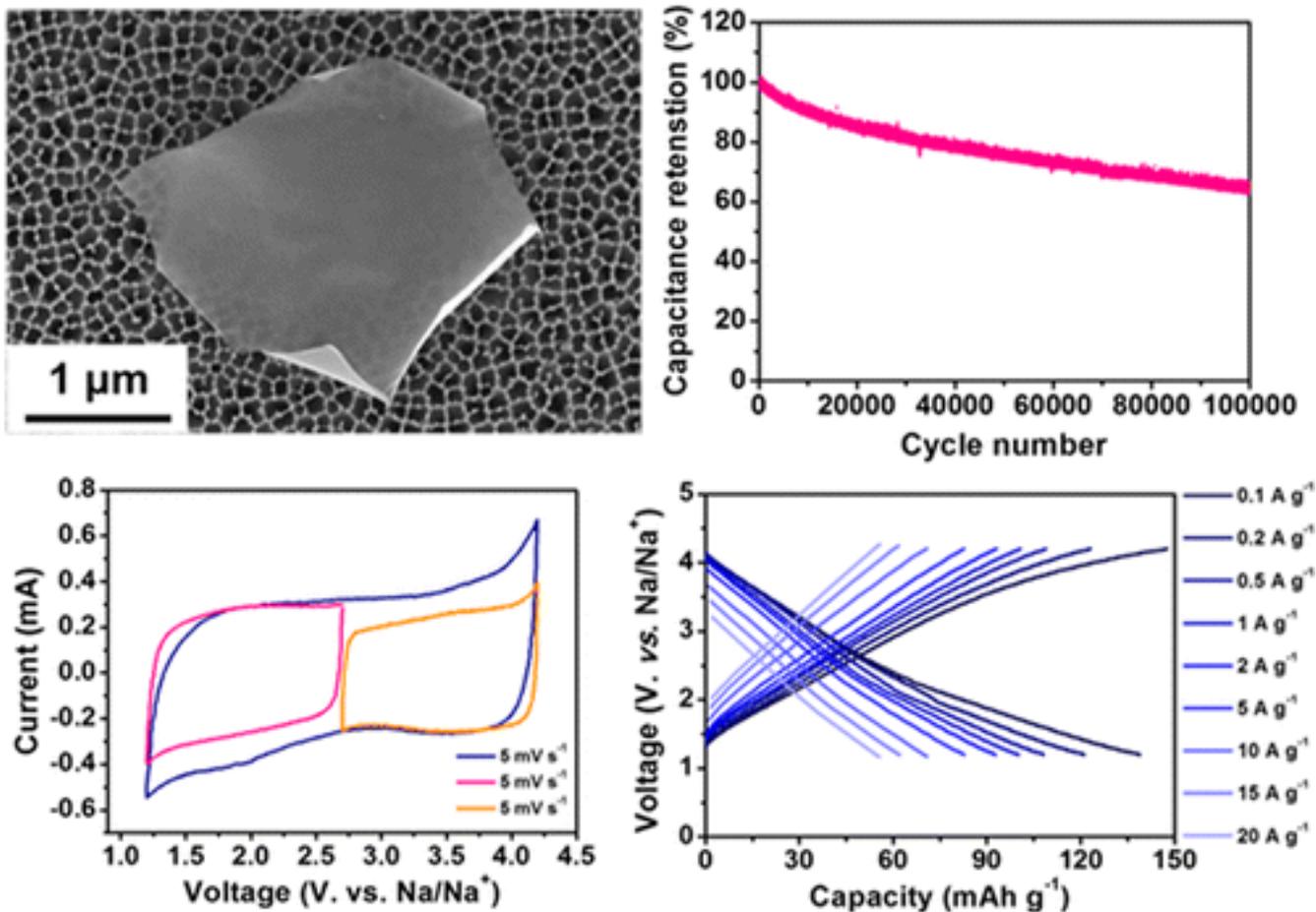
Workshop I
January 27, 2016

Presented by Anneli Hoggard for the Rice University CWOVC and DMC

Types of Research Illustrations



Would you read this paper?



Would you read this paper?

• Tannin Composition

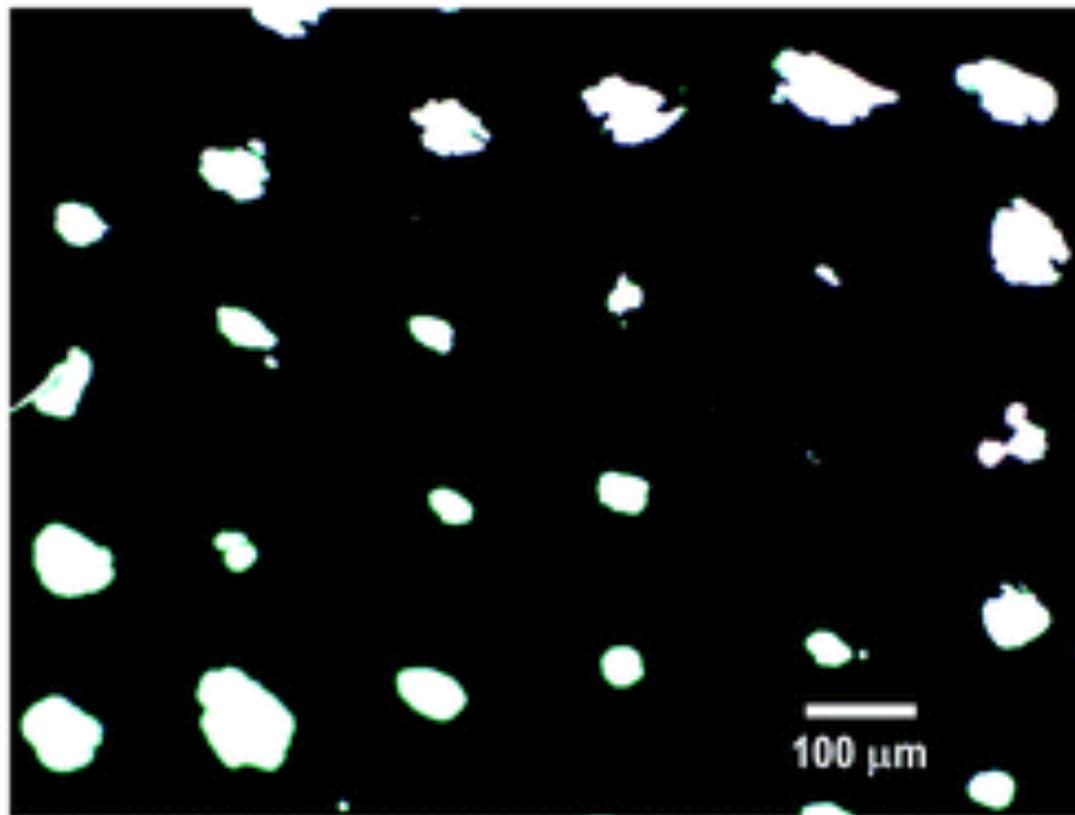
- Skin/Seed tannin
- Pigmented tannin
- Oxidized tannin

• Tannin Molecular Size

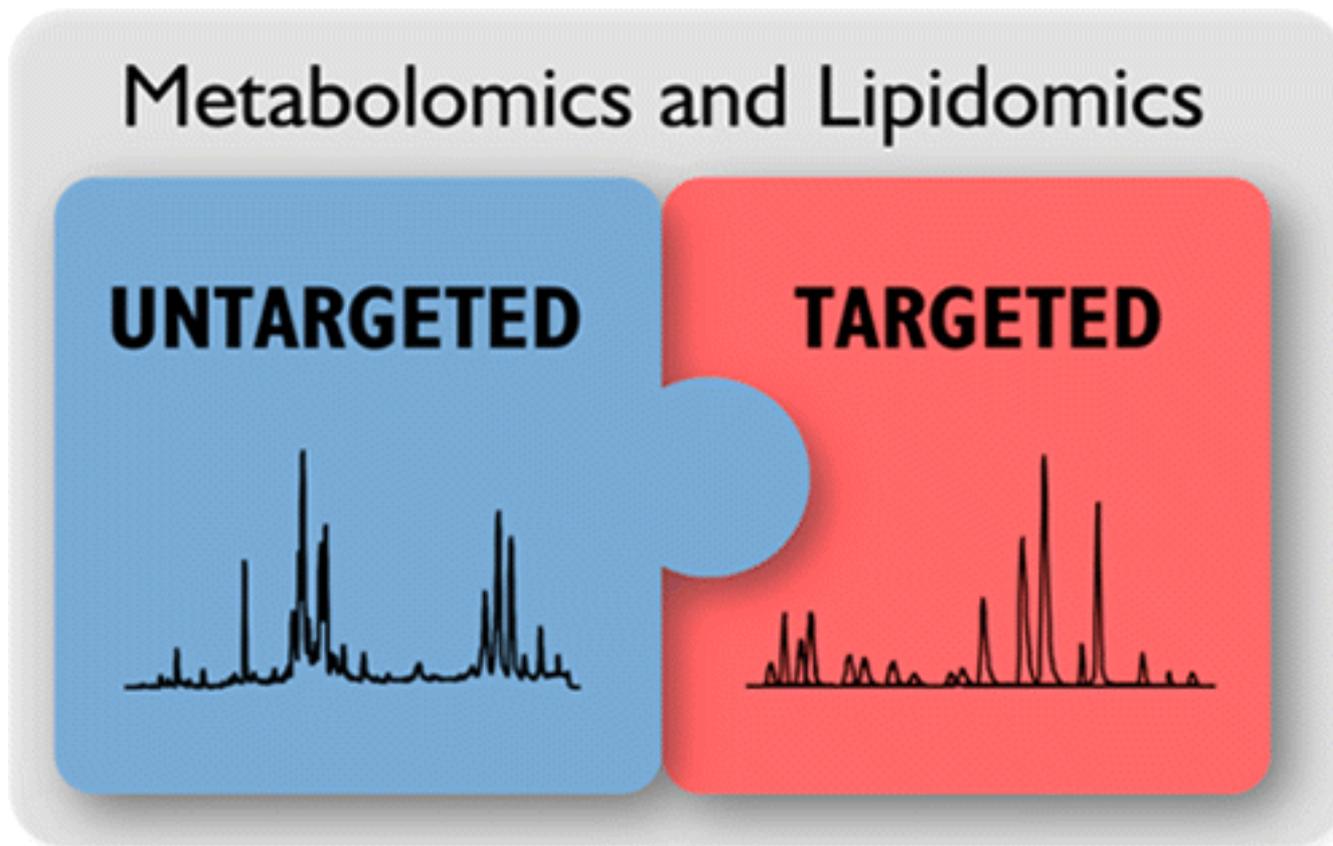
TANNIN ACTIVITY

R₁=H or OH
R₂=OH or galloyl

Would you read this paper?

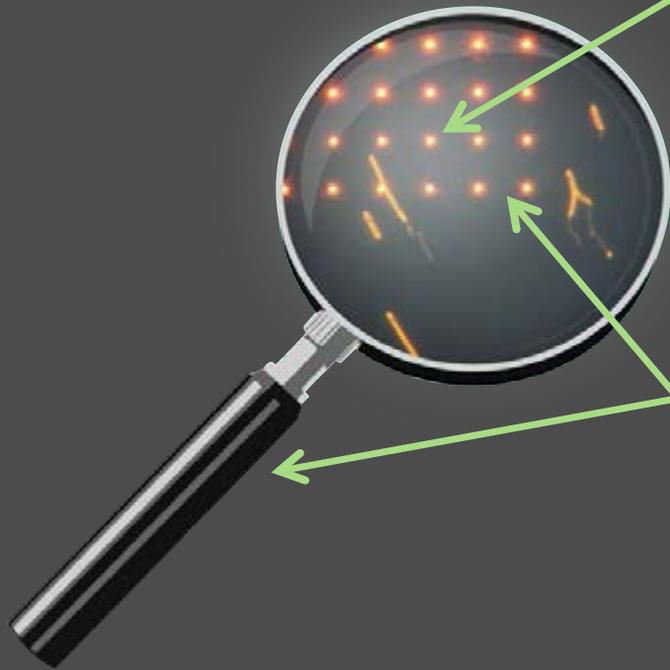


Would you read this paper?



Workshop Sections

Graphical abstract



.. **Function**

.. **Design**

.. **Execution**

.. **Style**

Workshop Deliverables

Envision .. your own TOC figure

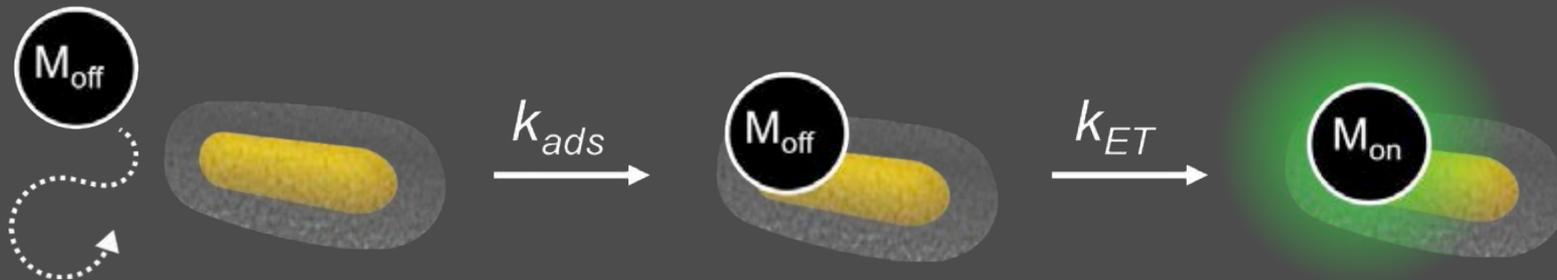
Simplify .. your message

Learn .. Adobe Illustrator basics
& illustration tips and tricks

What is the role of graphics in research?

“distill the take-home message of an article into an image that is not too cluttered, somewhat eye-catching, and relatively simple to interpret”

– *Nature* editorial



Illustrated

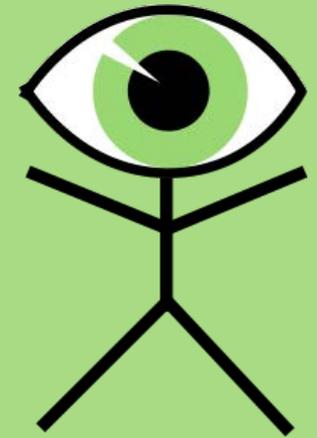


Written

Specific Aim III – B: Charge transfer rate constants.

We will determine the charge transfer rate constant using the rate of single molecule fluorescence events obtained through super-resolution imaging.⁴⁸⁻⁵³ The rate

**Vision dominates–
large parts of brain are devoted to
visual processing**

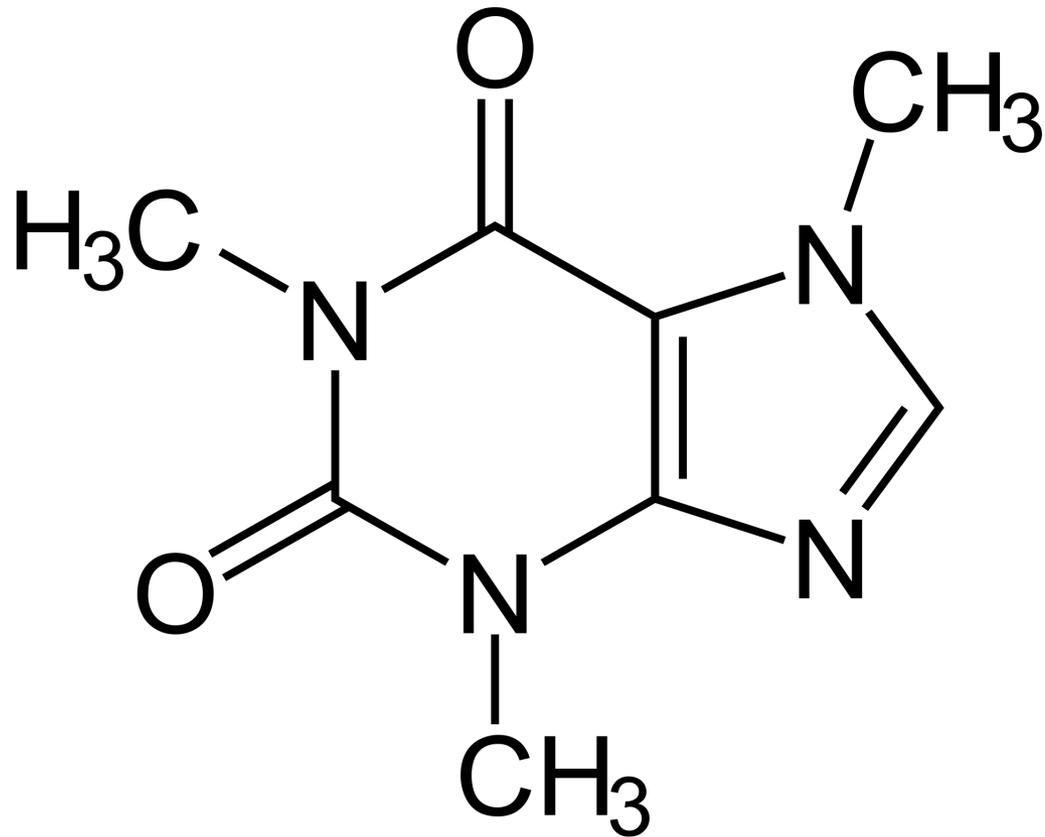


calculated from the absorption and hot electron transfer rate constants determined for individual coated nanorods. We will also analyze the electron transfer efficiency from the metal nanoparticle to the molecule, η_{M-m} , which accounts for hot electron losses in the semiconductor shell, through a combination of η_{M-SC} from Specific Aim II and η_{SC-m} .

Suppose you synthesized this molecule:

1,3,7-trimethylpurine-2,6-dione

aka caffeine



“In some cases a picture really is worth 1,000 words”

– *Nature* Editorial

Pre-attention

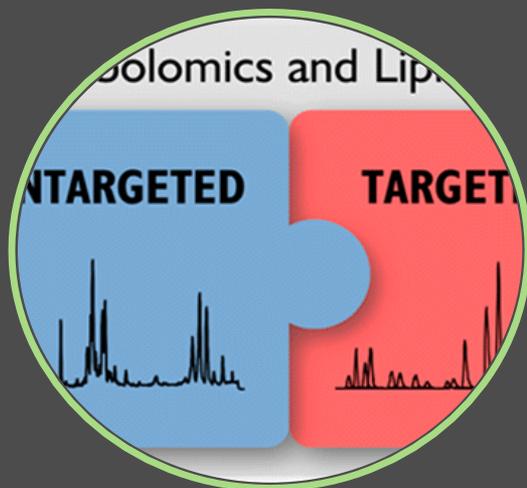
“When something just catches our eye, it is tapping into our earliest stages of attention.”

– *Presenting Data Effectively*

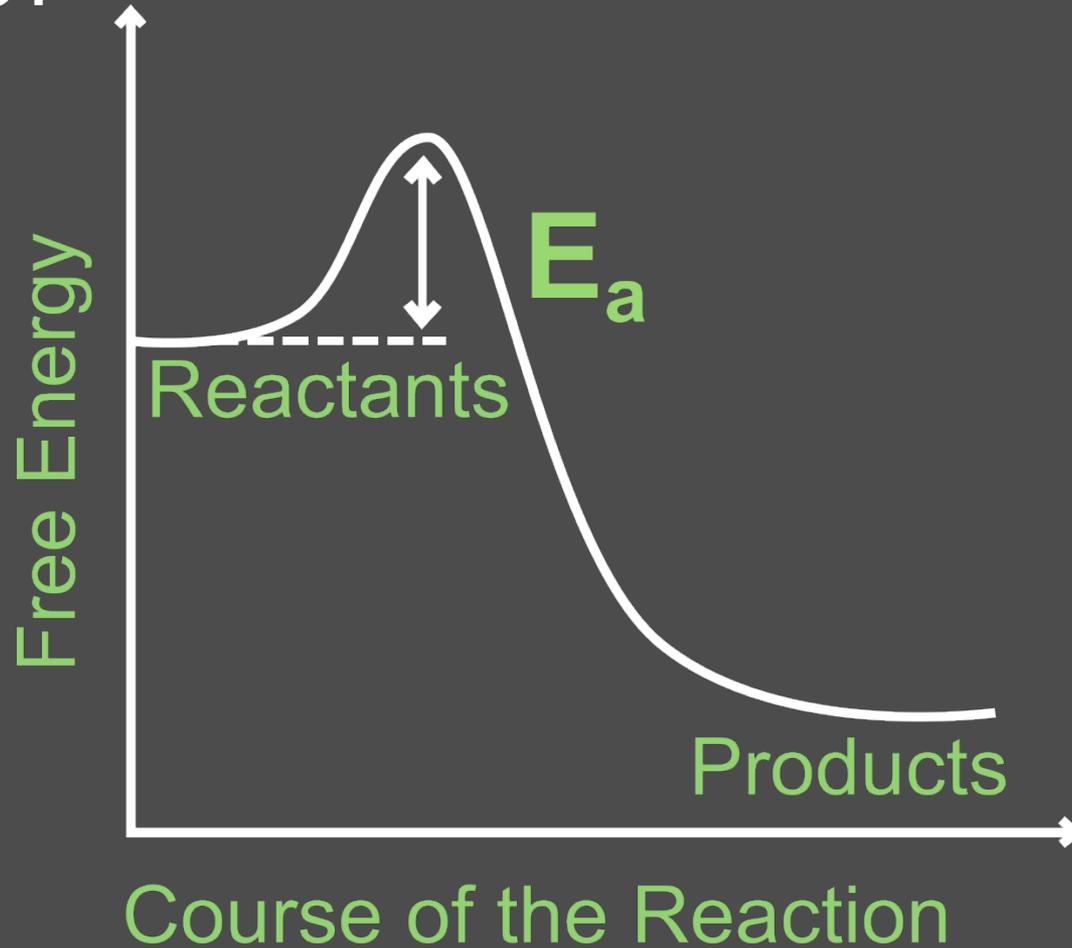
Goal = **sustained** interest

It could be argued that any graphical abstract that makes us sit up and take notice has served its purpose, but **that's only really the case if it makes us want to read the paper it is advertising.**

– *Nature* editorial



Minimize activation energy to
interest



Analytical Chemistry Most Read

Valle, Robert M. Strongin, Gabor Patonay, Herman O. Sintim, Gary A. Baker, Aleeta Powe, Mark Lowry, Jan O. Karolin, Chris D. Geddes, and Isiah M. Warner

Publication Date (Web): November 17, 2015 (Review)

DOI: 10.1021/acs.analchem.5b04109

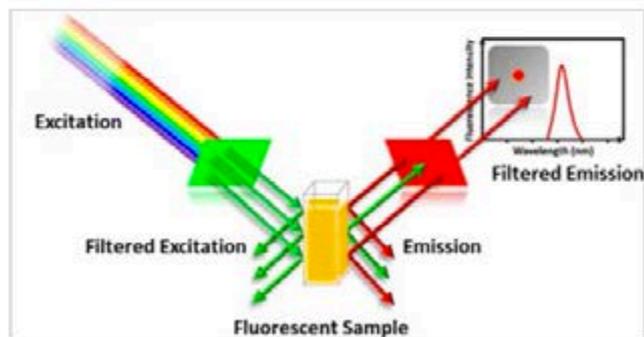


Figure 1 of 11

High Mass Spectrometry for Highly Efficient Analysis of Protein Phosphorylation

Yang Chen, Daojin Li, Zijun Bie, Xinpei He, and Zhen Liu

Publication Date (Web): December 18, 2015 (Article)

DOI: 10.1021/acs.analchem.5b04343



Figure 1 of 7

Toward Merging Untargeted and Targeted Methods in Mass Spectrometry-Based Metabolomics and Lipidomics

Tomas Cajka and Oliver Fiehn

Publication Date (Web): December 4, 2015 (Review)

DOI: 10.1021/acs.analchem.5b04491

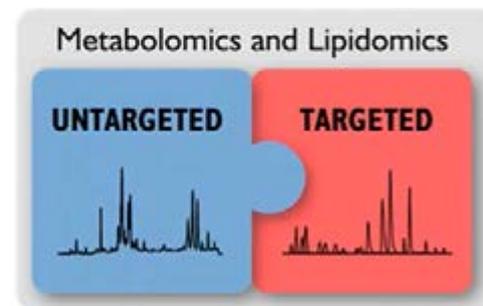


Figure 1 of 9

Advances in Sample Extraction

Sheng Tang, Hong Zhang, and Hian Kee Lee

Publication Date (Web): November 28, 2015 (Review)

DOI: 10.1021/acs.analchem.5b04040

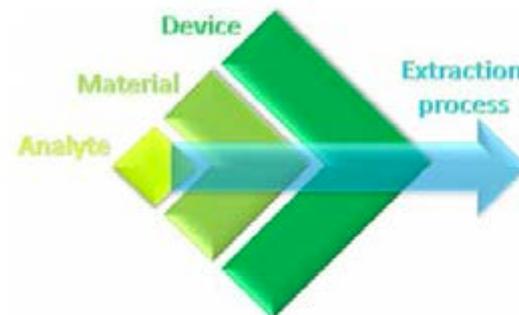


Figure 1 of 11

TOC Appeal

Think about – Does the graphic sell the article well?

Pick one of the following articles to read based on title alone.

A

Electrocatalytic Oxygen Evolution with an Atomically Precise Nickel Catalyst

B

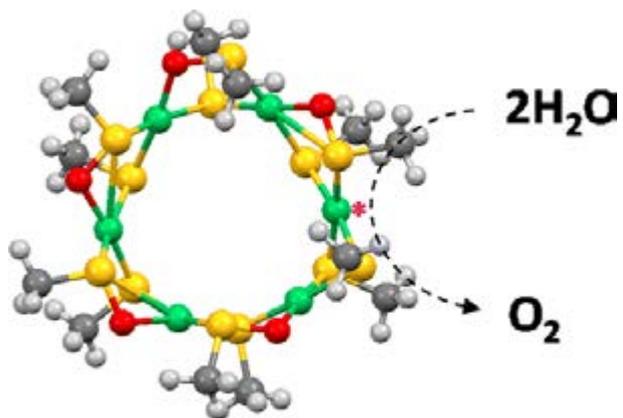
Combining Elemental Sulfur with Polybenzoxazines via Inverse Vulcanization

C

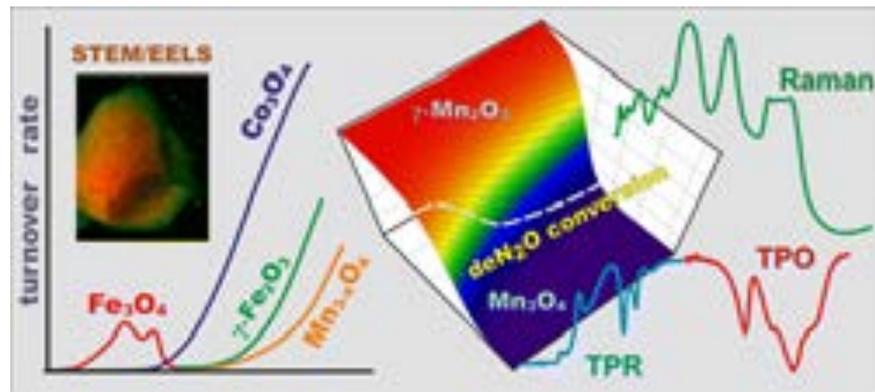
Thermodynamic Stability, Redox Properties, and Reactivity of Mn_3O_4 , Fe_3O_4 , and Co_3O_4 Model Catalysts for N_2O Decomposition: Resolving the Origins of Steady Turnover

Pick one of the following articles to read based on graphical abstract alone.

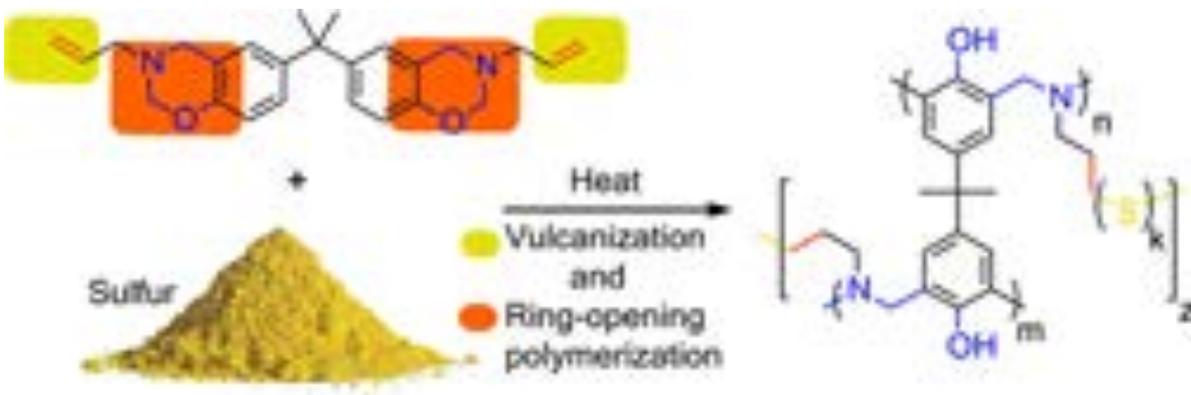
A



B

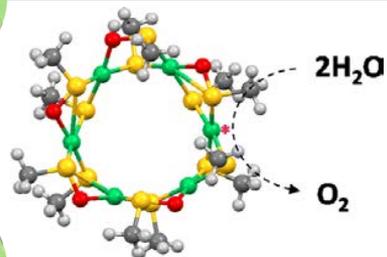


C



Let's compare!

A



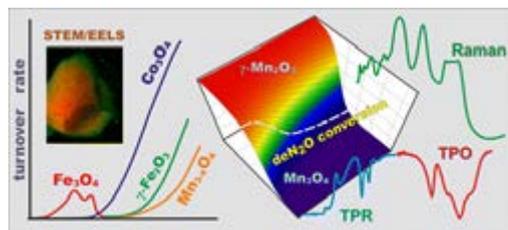
Electrocatalytic Oxygen Evolution with an Atomically Precise Nickel Catalyst

B



Combining Elemental Sulfur with Polybenzoxazines via Inverse Vulcanization

C



Thermodynamic Stability, Redox Properties, and Reactivity of Mn_3O_4 , Fe_3O_4 , and Co_3O_4 Model Catalysts for N_2O Decomposition: Resolving the Origins of Steady Turnover

Pick one of the following articles to read based on title alone.

A

Immunochemical Determination of Pyocyanin and 1-Hydroxyphenazine as Potential Biomarkers of *Pseudomonas aeruginosa* Infections

B

Multiplexed Detection of Cytokines Based on Dual Bar-Code Strategy and Single-Molecule Counting

C

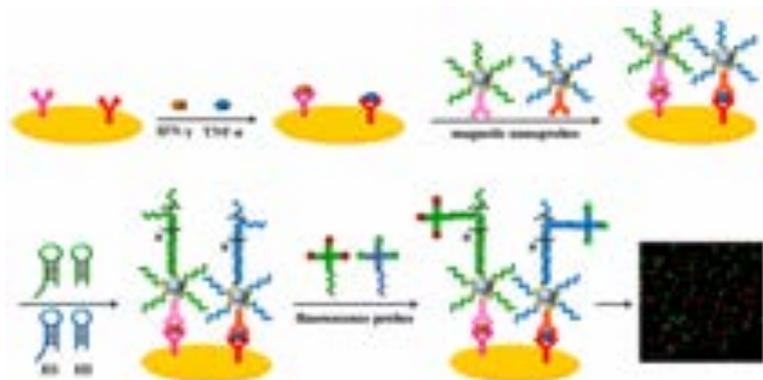
Real-Time Capture and Visualization of Individual Viruses in Complex Media

D

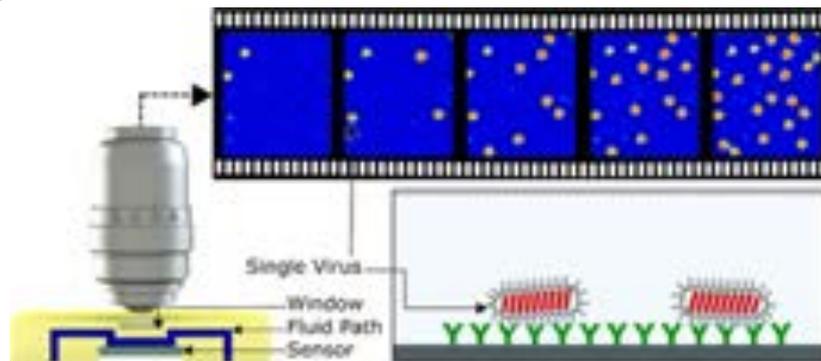
Multiplexed Recombinase Polymerase Amplification Assay To Detect Intestinal Protozoa

Pick one of the following articles to read based on graphical abstract alone.

A



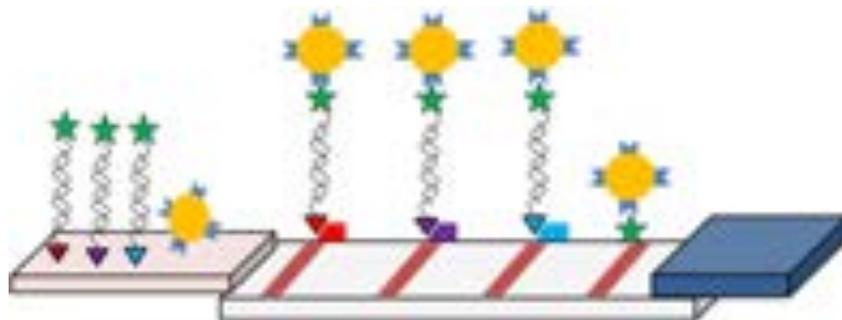
B



C



D



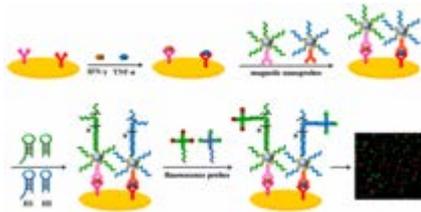
Let's compare!

A



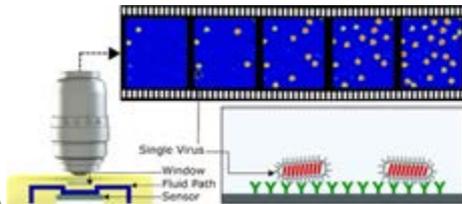
Immunochemical Determination of Pyocyanin and 1-Hydroxyphenazine as Potential Biomarkers of *Pseudomonas aeruginosa* Infections

B



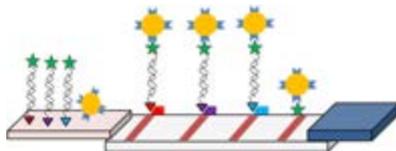
Multiplexed Detection of Cytokines Based on Dual Bar-Code Strategy and Single-Molecule Counting

C



Real-Time Capture and Visualization of Individual Viruses in Complex Media

D



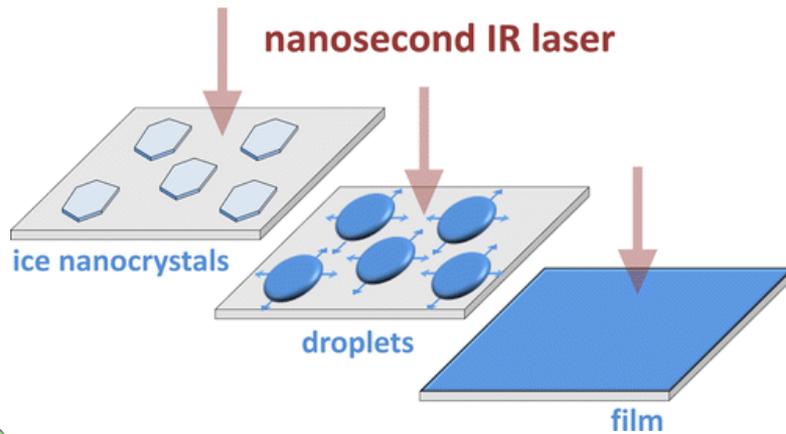
Multiplexed Recombinase Polymerase Amplification Assay To Detect Intestinal Protozoa

TOC comparisons

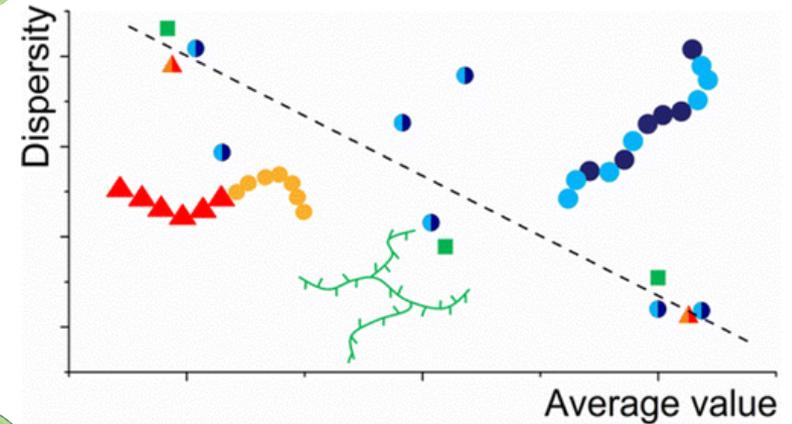
Think about – what makes a graphic attractive?

Pick one of the following articles to read based on graphical abstract alone.

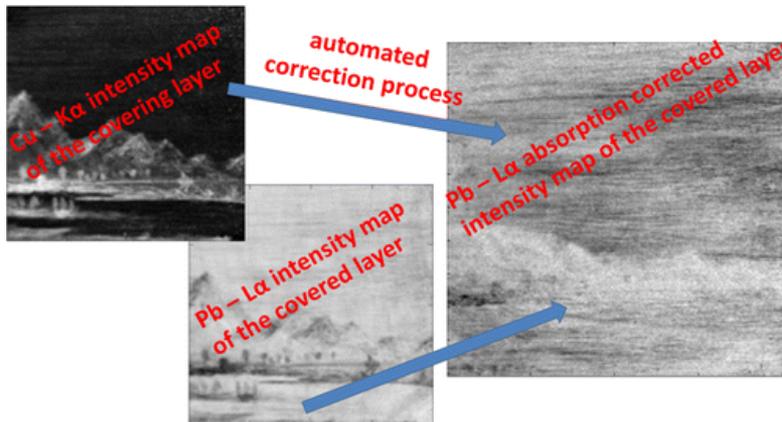
A



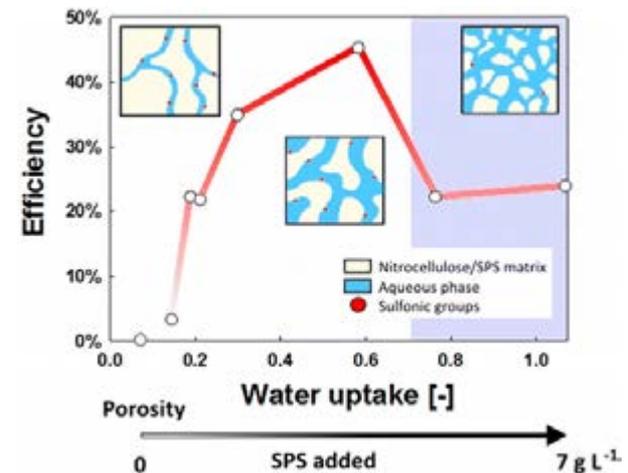
B



C

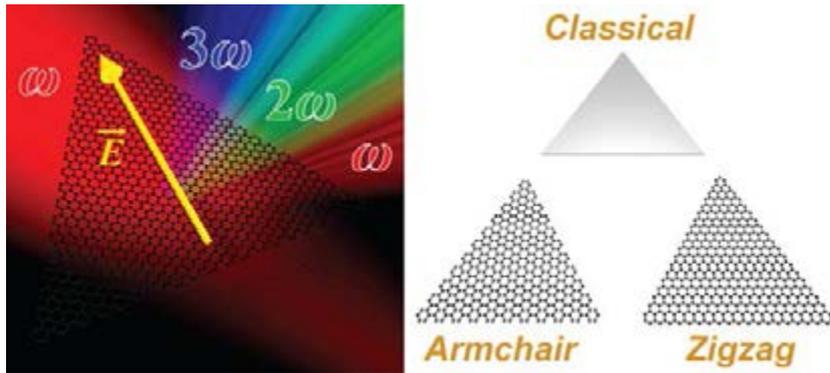


D

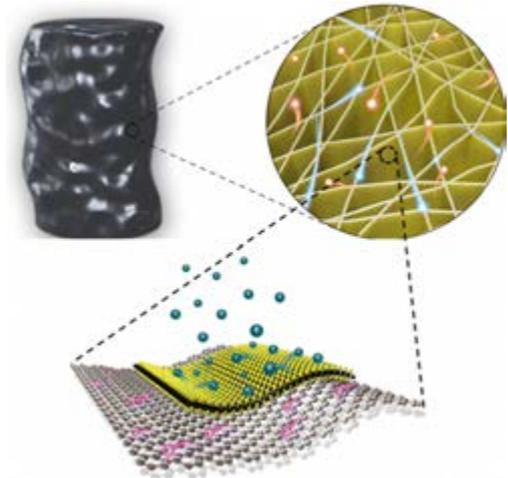


Pick one of the following articles to read based on graphical abstract alone.

A



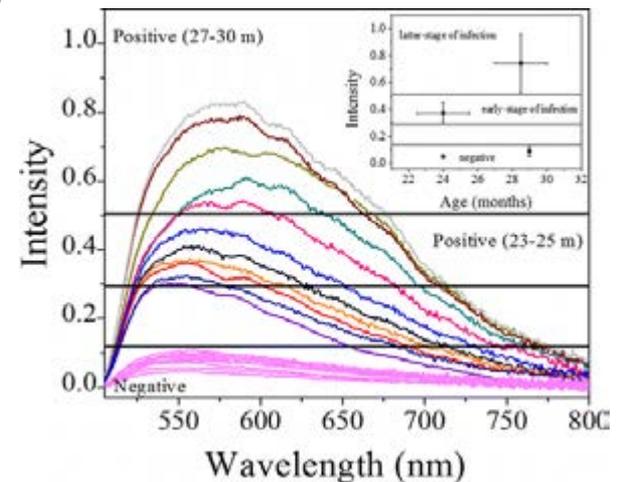
B



C

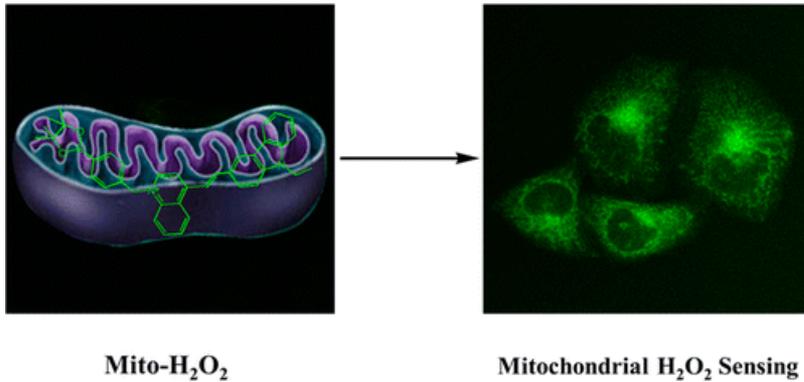


D

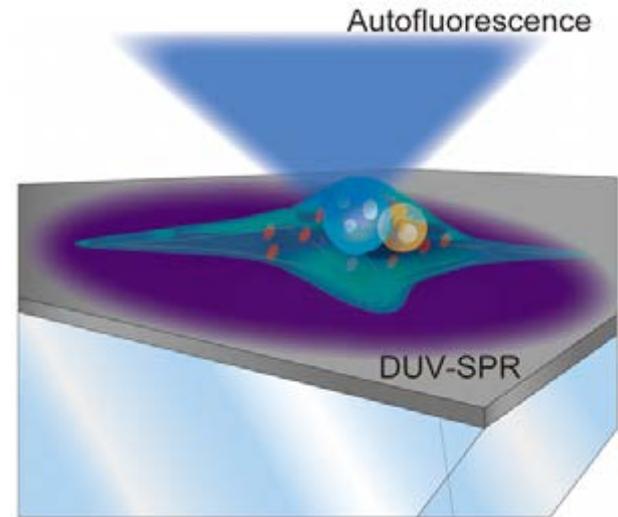


Pick one of the following articles to read based on graphical abstract alone.

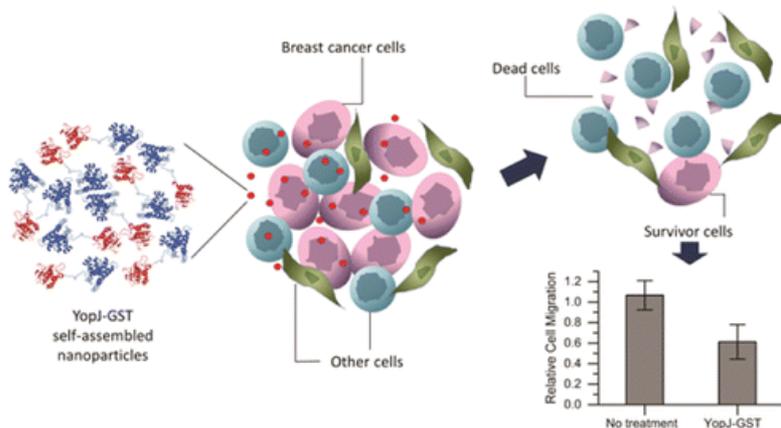
A



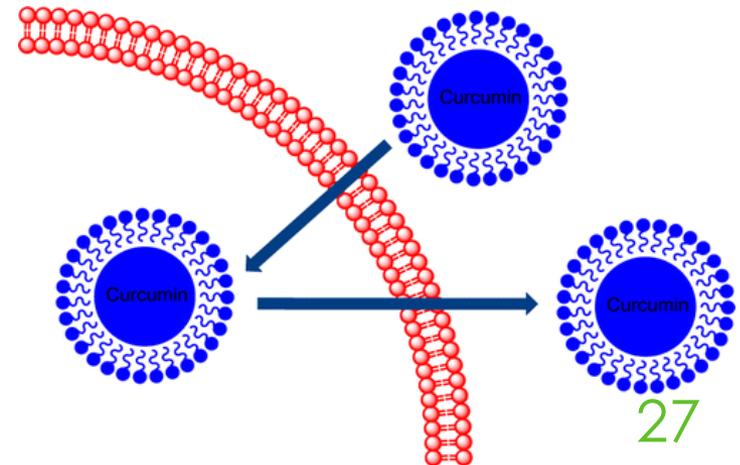
B



C



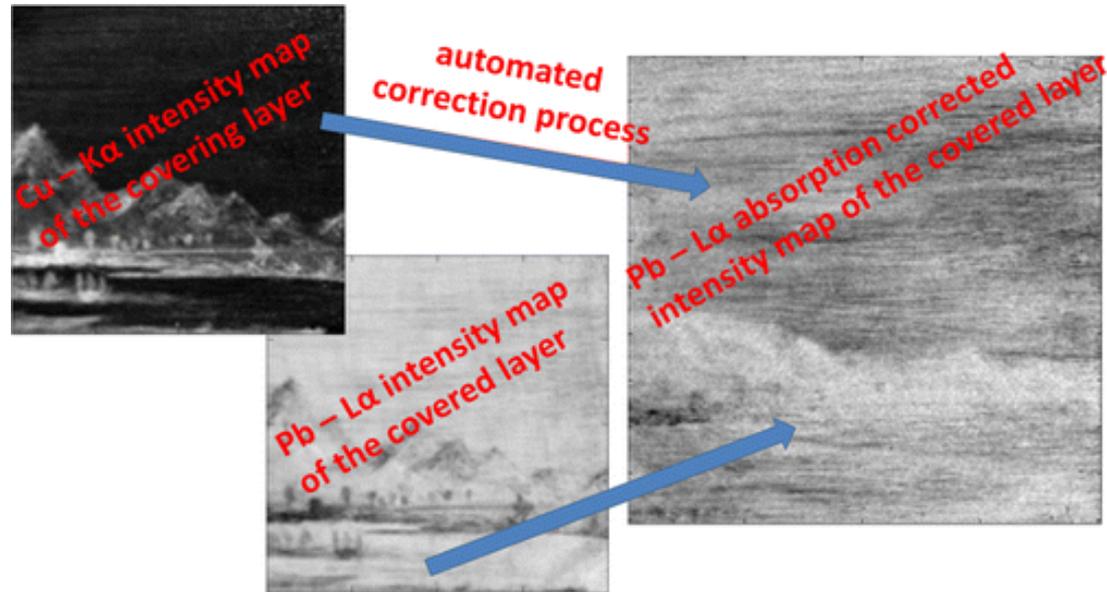
D



TOC takeaway

Think about – Does the graphic communicate well?

Fill in the blanks in the following title based on the graphical abstract only.



New Approaches for Correction of Interlayer Absorption Effects in X-ray Fluorescence Imaging of _____

A

Metal films

B

Polymers

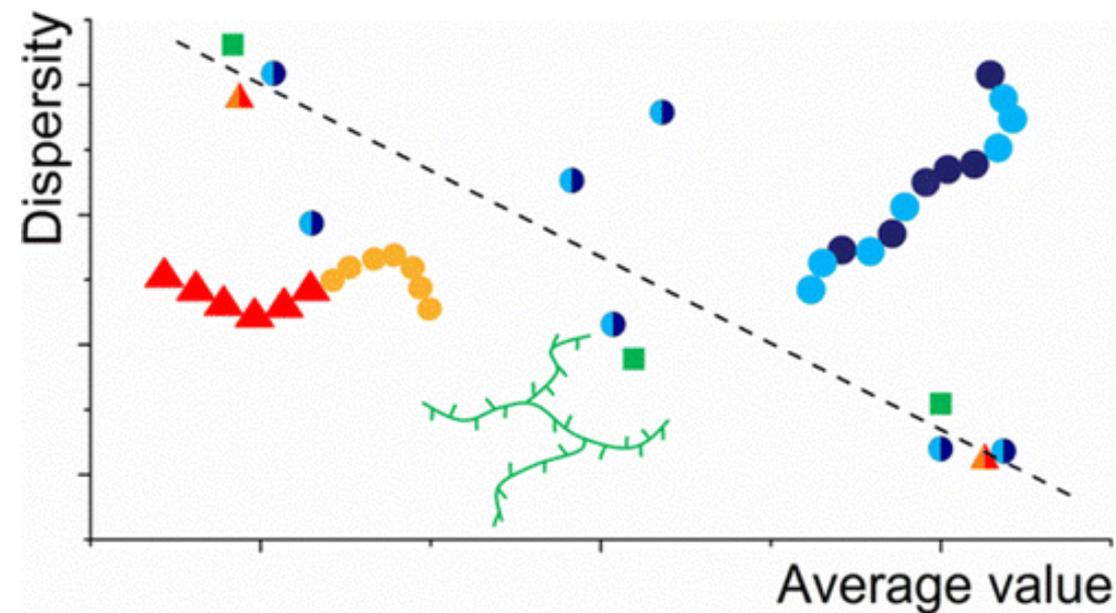
C

Sedimentation

D

Paintings

Fill in the blanks in the following title based on the graphical abstract only.



Quantifying the _____
of Chemical Structures in
Complex Charged
Polymers through the
Dispersity of Their
Distribution of
Electrophoretic Mobilities
or of Compositions

A

Periodicity

C

Frequency

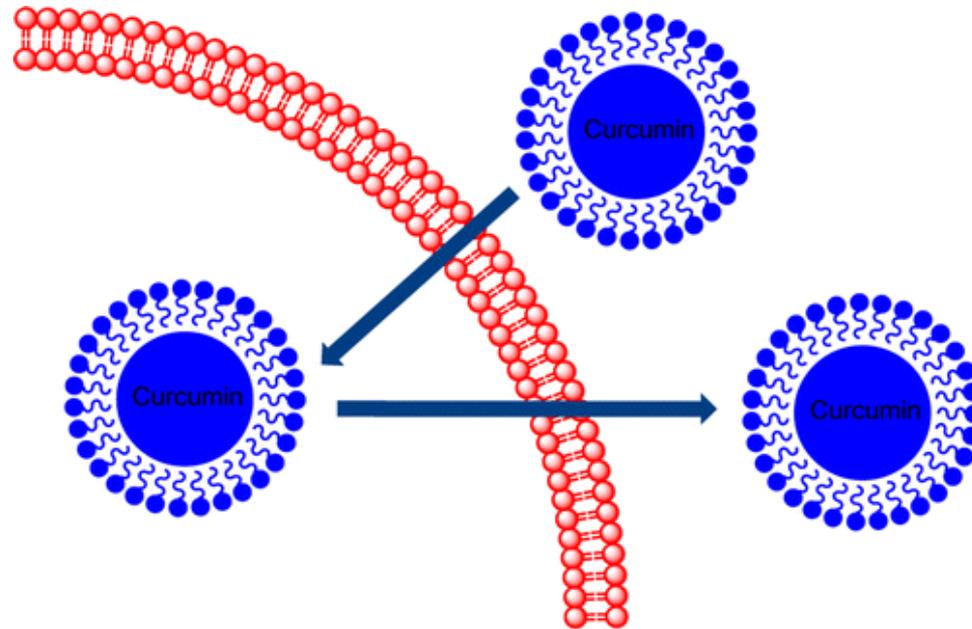
B

Homogeneity

D

Heterogeneity

Fill in the blanks in the following title based on the graphical abstract only.



Curcumin-Loading-Dependent ____ of PEG/PMEMA-Based Micelles Affects Endocytosis and Exocytosis in Colon Carcinoma Cells

A

Size

C

Stability

B

Density

D

Speed

Fill in the blanks in the following title based on the graphical abstract only.



Three-Dimensional Assembly of Yttrium Oxide Nanosheets into Luminescent Aerogel Monoliths with Outstanding _____

A

Absorption Properties

B

Quantum Efficiency

C

Color

D

Emission Lifetime

Even the artistically challenged can make conscious decisions to improve the quality their graphics



For next week...

Bring a figure you'd like to revise or a figure concept you're looking to create.

