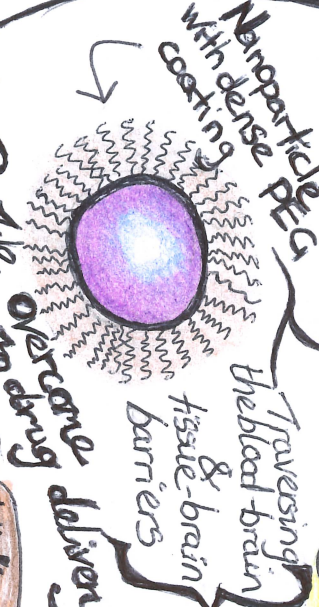


# CRS

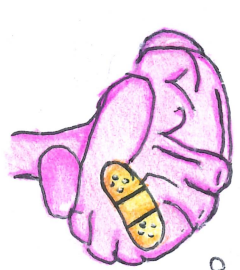
2019

MUCUS-PENETRATING PARTICLES

Uniform distribution  
Mucin interactions



How Do We Overcome Delivery?



Biological Barriers  
Current treatments for stroke are a race against time!!!  
Releasing protective proteins from PLGA particles

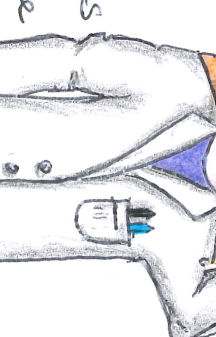
UNLOCKING THE REGENERATIVE POTENTIAL OF THE BRAIN

stroke patients suffer from irreversible scarring  
Bio-mimicking hydrogels applied directly to the brain  
Prevents secondary damage



THE RIBOSOME LINKS THE MODERN WORLD TO THE ORIGINS OF LIFE!

Ribosomal mutations lead to antibiotic resistance  
The bacterial ribosome  
Next-generation antibiotics

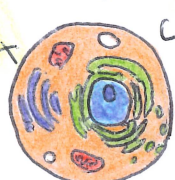


SEEING IS BELIEVING



Genetic Factors  
Differences in protein expression

Visualize mechanisms of tumor resistance  
Real-time imaging in vivo  
Single-cell diagnostics  
Fluorophore conjugation to drug precursors



ADVANCED WOUND HEALING



NANOSCALE POLYMER DRUG DELIVERY

Passing the blood-brain barrier  
Non-immunogenic  
Tumor targeting of Nanoparticle-derivatives  
NANOBIOHOSTS

ENHANCED TISSUE-PENETRATING PARTICLES



Peptide-carrying nanoparticles  
Prolonged drug release  
Patient compliance

HIV VACCINE

dosage & compliance  
Viral protease cleavage sites  
X-ray crystallography shows drug binding without activity



Species-specific targets  
Ribosomal profiling & imaging for novel antibiotics

Target multiple drug-binding sites on ribosomes  
Target ribo-switches that control antibiotic resistance



MRSA  
The NEWS!  
MULTIDRUG RESISTANT BACTERIA ARE A THREAT TO HUMAN LIFE!

conformational changes identified

Engineering  
TREATMENT OF IMMUNOGENIC DISEASE

Self-assembling hydrogels  
Treatment of immunogenic disease  
Targeted by macrophages

