

Applications:

- Pharmaceuticals
- Oil and gas
- Paper and pulp
- Bioenergy

Benefits:

- Longer life span for enzymes
- Lower COGS
- Less engineering of established processes
- More robust processes
- Better quality control

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Summary:

Engineering enzymes that are tolerant to the demanding conditions of industrial processes while retaining their activity is a difficult challenge. Most enzymes function optimally in an environment that mimics their host environment, however, such conditions are not always amenable to industrial scale-up.

Engineered enzymes are essential for many industries including the pharmaceutical, paper and pulp, oil and gas, and the newly emerging biofuels industry. Los Alamos National Laboratory (LANL) has developed proprietary methods for engineering enzymes that are highly resistant to high pH and high temperature while maintaining their functionality.

Development Stage:

Los Alamos' approach has been proven on several proteins. One example is known as consensus green protein (CGP). Following treatment using our proprietary process, the function of the subject enzymes did not degrade after exposure to temperatures greater than 80 degrees Celsius and pH greater than 10 for over 12 hours.

Patent Status:

Provisional patent applications filed

Licensing Status:

LANL is seeking partners to help it further develop the technology and to license the technology portfolio for commercialization.



Extreme thermostability of the fluorescent protein CGP retains fluorescence after extended exposure to 80°C.