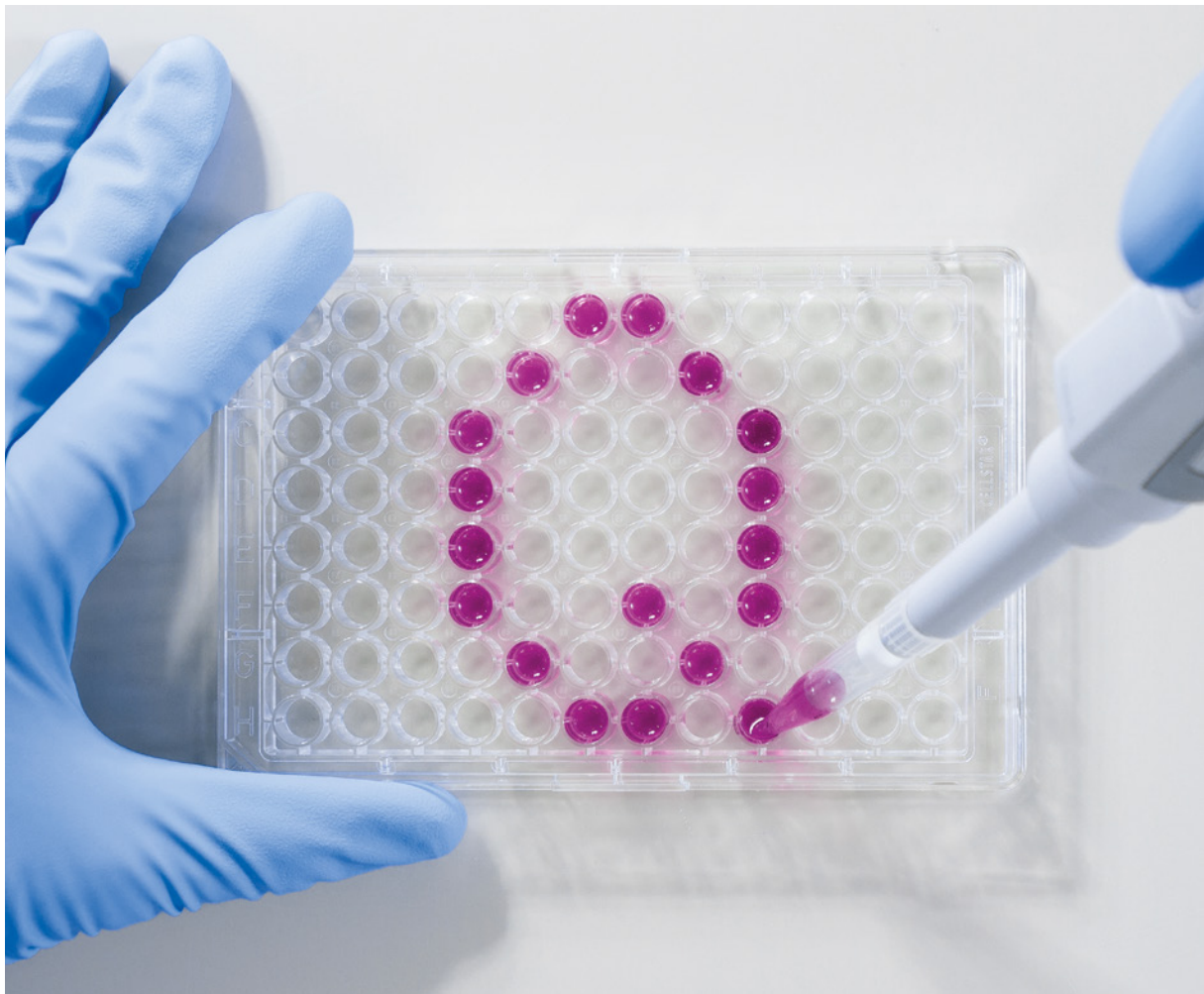


cQrex™ boosters

Chemically defined performance enhancers
for cell culture



cQrex™ BOOSTERS – DESIGNED TO OVERCOME TYPICAL CHALLENGES IN CELL CULTURE APPLICATIONS

Stability

Stabilizes L-glutamine to allow for heat sterilization and prolonged shelf life in solution

Protection

Keeps cells healthy by scavenging harmful species and reversing senescence

Solubility

Increases the solubility of key amino acids to allow for higher concentrations and cell availability

Performance

Stimulates cells to increase specific productivity

Availability

All products are readily available from lab to production scale

cQrex™ AQ AND GQ – HIGHLY GLUTAMINE ALTERNATIVES

What are they:

- Peptides of L-glutamine and L-alanine or glycine

What are the benefits:

- Less ammonia
- Higher stability
- Higher solubility

cQrex™ GY – THE PH NEUTRAL SOLUBLE TYROSINE SOURCE

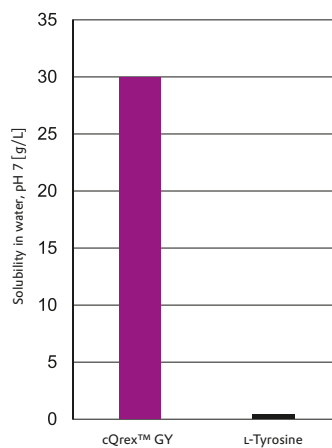
What is it:

- A peptide of L-tyrosine and glycine

What are the benefits:

- Soluble form of L-tyrosine
- Concentrated feeds at neutral pH

cQrex™ GY solubility at neutral pH



cQrex™ AKG – STIMULATING T...

What is it:

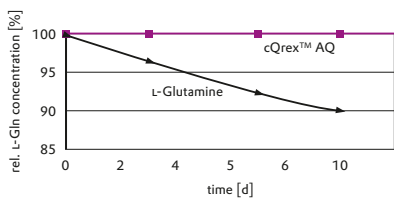
- A naturally occurring ketoacid that is part of the cell's energy metabolism

What are the benefits:

- Improved cultivation performance from primary to insect and CHO cells
- Higher titer and productivity in CHO cells
- Oxidation protection against reactive species

STABLE

Comparison of stability of aqueous solutions of L-glutamine and cQrex™ AQ



Stability of an aqueous solution (10g/L) at 37°C and pH7

cQrex™ AAQ – A POWERFUL PRODUCTIVITY STIMULUS

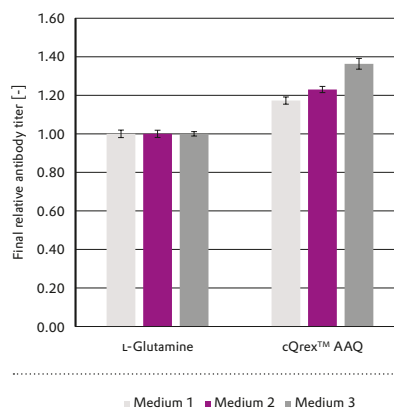
What is it:

- Peptide of L-glutamine & L-alanine with an additional chemical modification

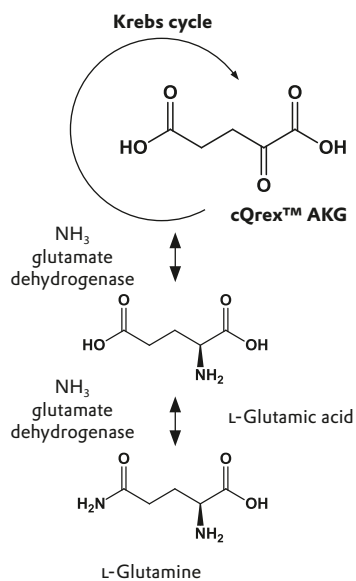
What are the benefits:

- Higher product titer
- Increased specific productivity

Replacing L-glutamine with cQrex™ AAQ increased specific productivity for three commercial basal media



THE CELL'S ENERGY CYCLE



cQrex™ CARNOSINE – A VERSATILE BOOSTER FOR CELL CULTIVATION IMPROVEMENTS

What is it:

- A peptide of β-alanine and L-histidine.

What are the benefits:

- Oxidation protection
- Anti-senescence and senescence-reversing effects
- Stimulates stem cells



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