

GLUTAMAX SUPPLEMENT CAN KEEP YOUR CELLS HEALTHIER FOR LONGER



Essential nutrient composition matters

L-glutamine is an essential nutrient in cell cultures for energy production as well as protein and nucleic acid synthesis. However, L-glutamine in cell culture media spontaneously degrades [1], generating ammonia as a by-product, which is toxic to the cells [2]. This can affect protein glycosylation [3,4] and cell viability, lowering protein production and changing glycosylation patterns.

Media stability keeps cells healthier

Media with Gibco™ GlutaMAX™ Supplement are standard cell culture formulations containing a stabilized form of L-glutamine, the dipeptide L-alanyl-L-glutamine, that prevents degradation and subsequent buildup of ammonia even during long-term culture incubation times (Figures 1 and 2). This allows:

- Increased media stability
- Minimized toxic ammonia buildup
- Maximized cell performance

Extend the life of your cells

GlutaMAX Supplement can also extend cell culture life, which may reduce the number of times the cells must be passaged (Figure 3). The slight increase of the lag phase is attributed to the time needed to release the peptidase and digest the dipeptide. This allows a gradual increase in availability of L-glutamine to the cells [2].

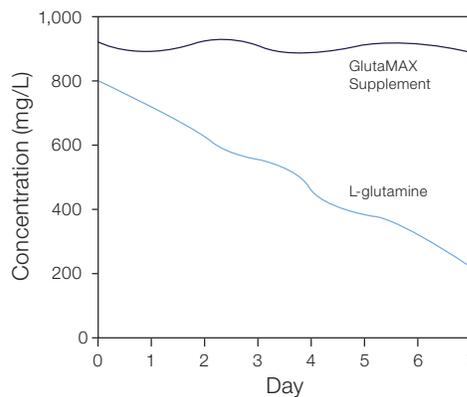


Figure 1. L-Glutamine degrades faster than GlutaMAX Supplement in media at 37°C. DMEM was supplemented with GlutaMAX Supplement or L-glutamine, dispensed into vials, and stored at 37°C. Samples were taken daily and frozen at -20°C. Levels of GlutaMAX Supplement and L-glutamine were determined by HPLC.

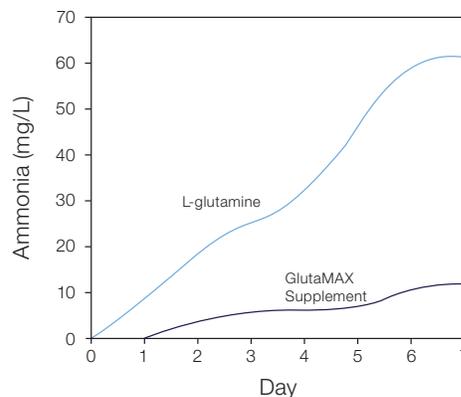


Figure 2. Ammonia levels in supplemented media. DMEM was supplemented with GlutaMAX Supplement or L-glutamine, dispensed into vials, and stored at 37°C. Samples were taken daily and frozen at -20°C. Levels of ammonia were determined by HPLC.

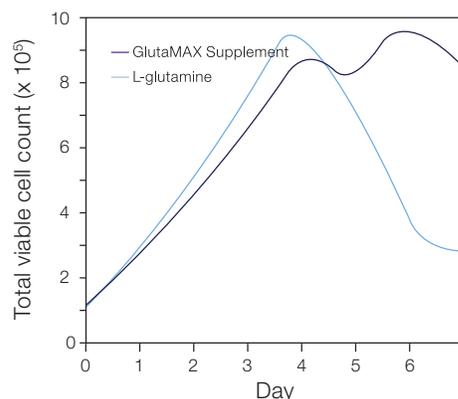


Figure 3. Growth of MDBK cells with L-glutamine versus GlutaMAX Supplement. MDBK cells were seeded at approximately 1×10^5 cells/flask in DMEM with 10% FBS and L-glutamine or GlutaMAX Supplement in 25 cm² T-flasks.

Ordering information

Description	Quantity	Classical medium with L-glutamine		Classical medium without L-glutamine		Medium with GlutaMAX Supplement	
		Cat. No.	Cat. No.	Quantity	Cat. No.		
Dulbecco's Modified Eagle Medium (DMEM) (1X), liquid Low glucose, contains sodium pyruvate	500 mL	11885-084			500 mL	10567-014 (in EU 21885-025)	
	10 x 500 mL	11885-092					
Dulbecco's Modified Eagle Medium (DMEM) (1X), liquid High glucose, contains sodium pyruvate	500 mL	11995-065		10313-021	500 mL	10569-010 (in EU 31966-021)	
	10 x 500 mL	11995-073					
Dulbecco's Modified Eagle Medium (DMEM) (1X), liquid High glucose, contains no sodium pyruvate	1,000 mL	11965-084		11960-051	500 mL	10566-016 (in EU 61965-026)	
	6 x 1,000 mL	11965-126		11960-077			
	500 mL	11965-092		11960-044			
	10 x 500 mL	11965-118		11960-069			
Dulbecco's Modified Eagle Medium (DMEM) (1X), liquid High glucose, contains HEPES buffer but no sodium pyruvate	500 mL	12430-054			500 mL	10564-011 (in EU 32430-027)	
	10 x 500 mL	12430-062					
DMEM/F-12 (1X), liquid, 1:1	500 mL	11320-033			500 mL	10565-018 (in EU 31331-028)	
Ham's F-12 Nutrient Mix (1X), liquid	500 mL	11765-054			500 mL	31765-035 (in EU 31765-027)	
	10 x 500 mL	11765-062					
Iscove's Modified Dulbecco's Medium (IMDM) (1X), liquid	500 mL	12440-053			500 mL	31980-030 (in EU 31980-022)	
	10 x 500 mL	12440-061					
Minimum Essential Medium (MEM) alpha (1X), liquid Contains no ribonucleosides or deoxyribonucleosides	1,000 mL	12561-049			500 mL	32561-037 (in EU 32561-029)	
	500 mL	12561-056					
Minimum Essential Medium (MEM) alpha (1X), liquid Contains ribonucleosides and deoxyribonucleosides	1,000 mL	12571-048			500 mL	32571-036 (in EU 32571-028)	
	500 mL	12571-063					
	10 x 500 mL	12571-071					
Minimum Essential Medium (MEM), liquid Contains Earle's salts	1,000 mL	11095-072		11090-073	500 mL	41090-036 (in EU 41090-028)	
	500 mL	11095-080		11090-081			
	10 x 500 mL	11095-098		11090-099			
Minimum Essential Medium (MEM), liquid Contains Earle's salts and HEPES buffer	500 mL			12360-038	500 mL	42360-032 (in EU 42360-024)	
Opti-MEM I Reduced-Serum Medium (1X), liquid	100 mL	31985-062			500 mL	51985-034 (in EU 51985-026)	
	500 mL	31985-070					
RPMI 1640 Medium (1X), liquid	1,000 mL	11875-085		21870-084	500 mL	61870-036 (in EU 61870-010)	
	500 mL	11875-093		21870-076			
	10 x 500 mL	11875-119		21870-092			
RPMI 1640 Medium (1X), liquid Contains HEPES buffer	1,000 mL	22400-071			500 mL	72400-047 (in EU 72400-021)	
	500 mL	22400-089					
	10 x 500 mL	22400-105					

Ordering information

Description	Quantity	Cat. No.	GlutaMAX Supplement	
			Quantity	Cat. No.
L-Glutamine 200 mM (100X), liquid	20 mL	25030-149	100 mL	35050-061* (in EU 35050-038*)
	100 mL	25030-081		
	20 x 100 mL	25030-164	20 x 100 mL	35050-079* (in EU 35050-087*)
Penicillin-Streptomycin-Glutamine (100X)	100 mL	10378016	100 mL	A5873601

* This product is for research use, and where appropriate, as raw material components in further cell culture manufacturing applications. It is not intended for human or animal diagnostic, therapeutic, or other clinical uses, unless otherwise stated.

References

1. Tritsch GL, Moore GE (1962) Spontaneous decomposition of glutamine in cell culture media. *Exp Cell Res* 28:360–364.
2. Hassell T, Gleave S, Butler M (1991) Growth inhibition in cell culture. The effect of lactate and ammonia. *Appl Biochem Biotechnol* 30:29–41.
3. Yang M, Butler M (2002) Effects of ammonia and glucosamine on the heterogeneity of erythropoietin glycoforms. *Biotechnol Prog* 18:129–138.
4. Yang M, Butler M (2000) Effects of ammonia on the glycosylation of human recombinant erythropoietin in culture. *Biotechnol Prog* 16:751–759.

Find out how to maximize your cell cultures using media with GlutaMAX Supplement at [thermofisher.com/glutamax](https://www.thermofisher.com/glutamax)

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