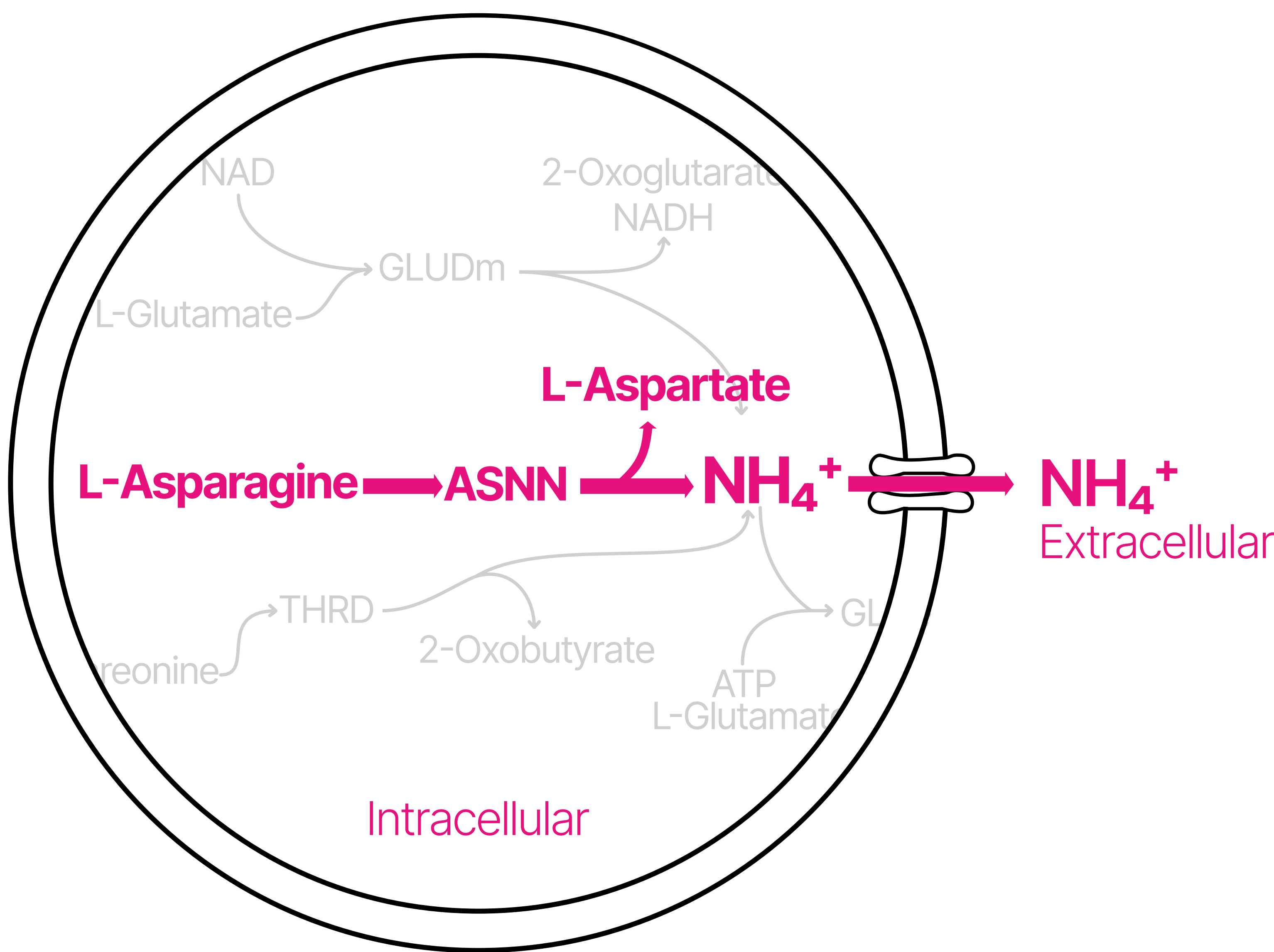


Identify why ammonium is building up and mitigate it whilst maintaining titer.

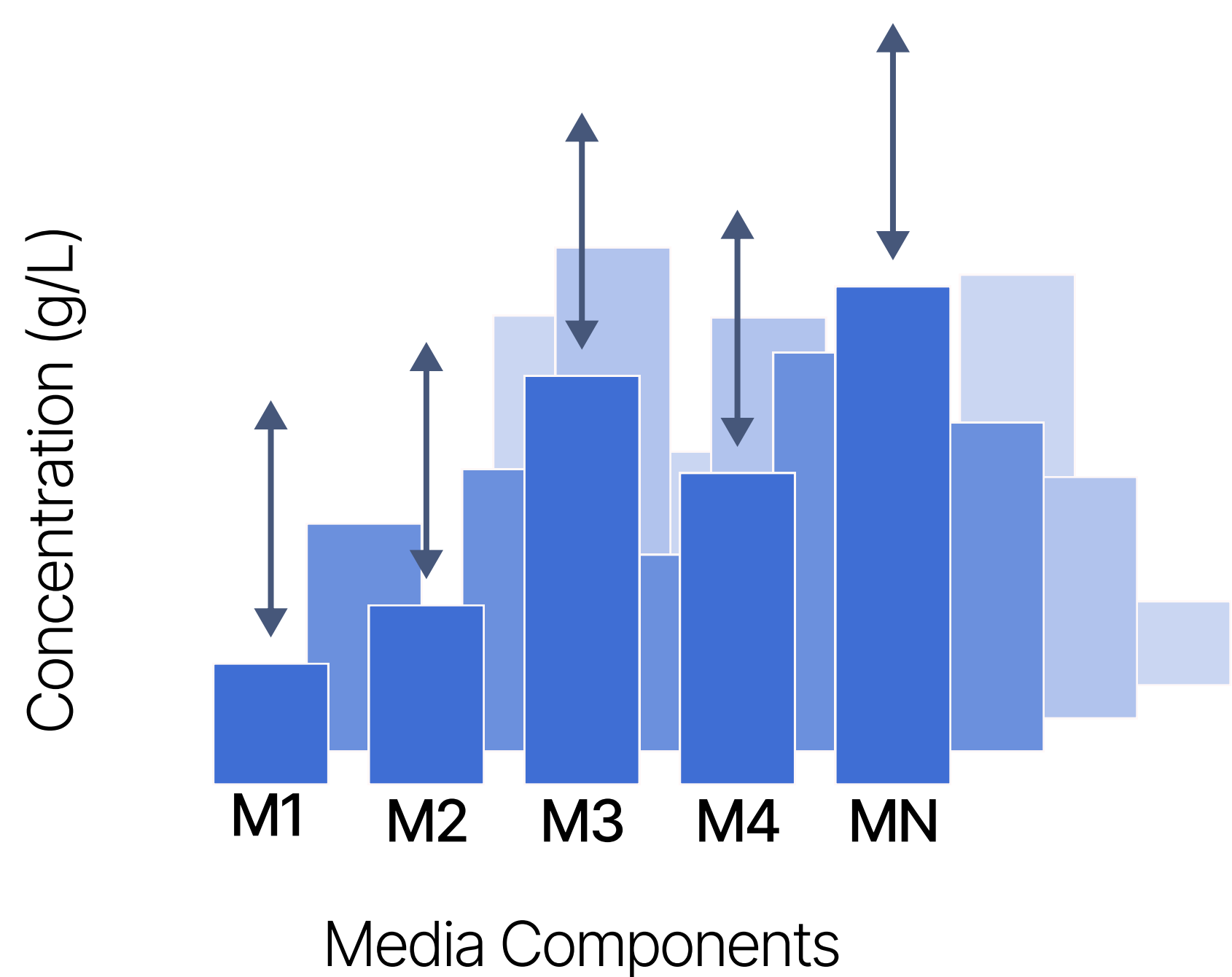
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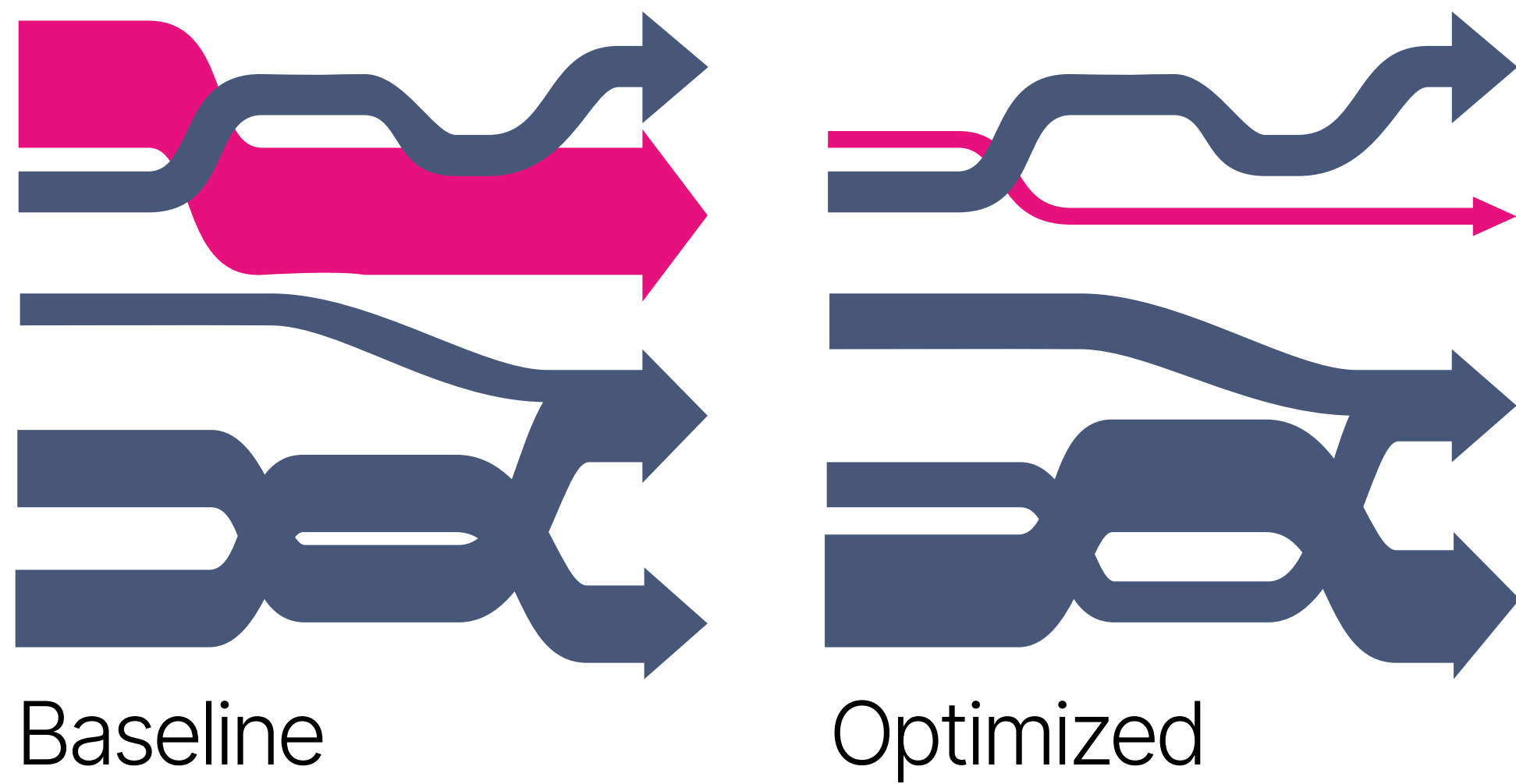
Ammonium was building up during a partner’s process, causing cytotoxicity. Our metabolic pathway analysis identified **Asparagine degradation** as the root cause.



The multivariate, multi-objective nature of the problem meant there were **too many combinations** for experimental trial and error to be feasible.

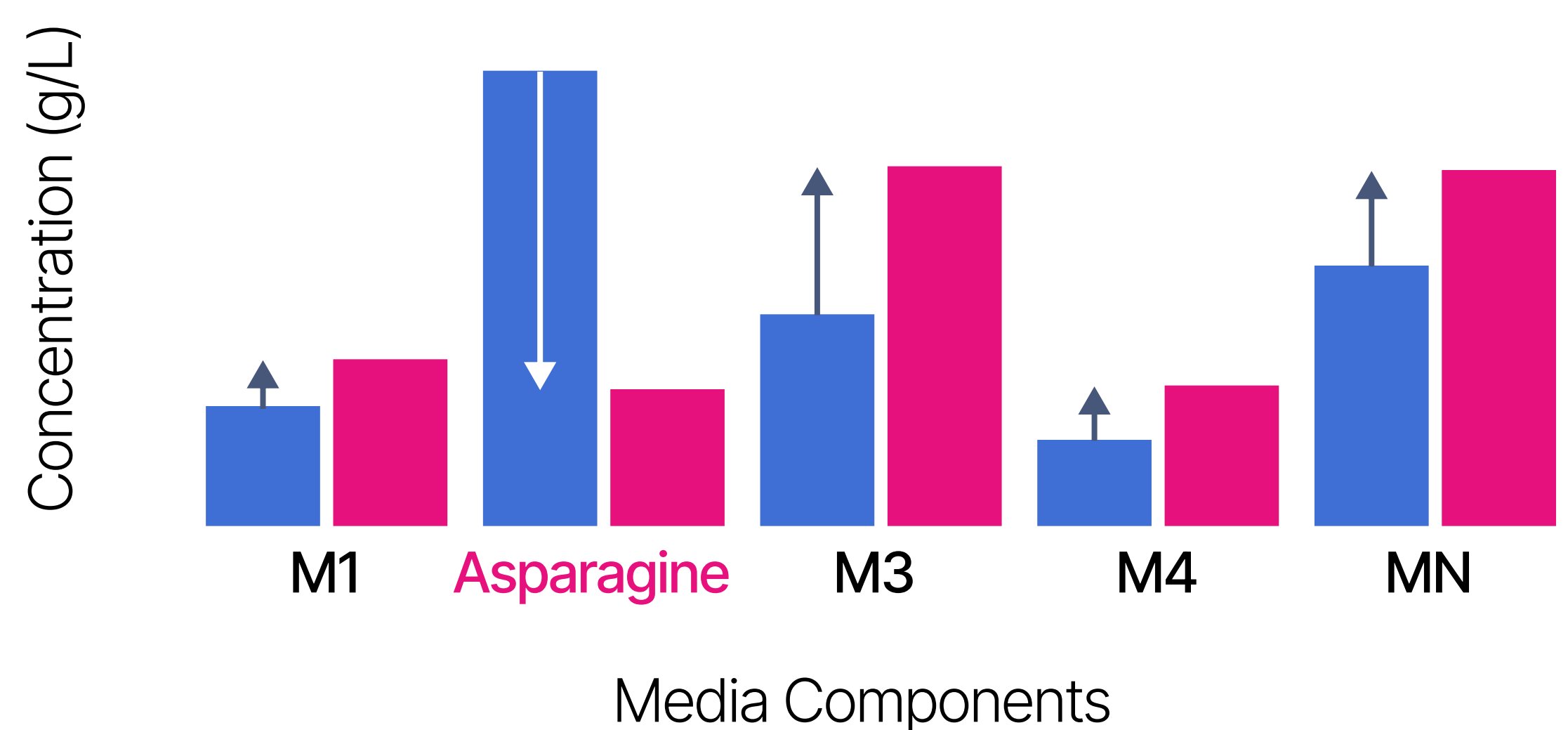
We simulated thousands of media compositions...





... to find a combination that both reduced the rate of **asparagine degradation** and maintained titer.

The model recommended reducing Asparagine in the media and making compensatory increases in other components.



The result:

Peak NH_4^+ Concentration

Baseline

0.12 g/L

Optimized (experimentally confirmed)

0.06 g/L 50% Reduction

Titer as a percentage of baseline

98.7%

Struggling with by-product build up?

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