

Ref: El-Sabbahy et al. The effect of feed quality due to clarification strategy on the design and performance of protein A periodic counter-current chromatography, *Biotechnology Progress* 2018

3M™ Emphaze™ AEX Hybrid Purifier



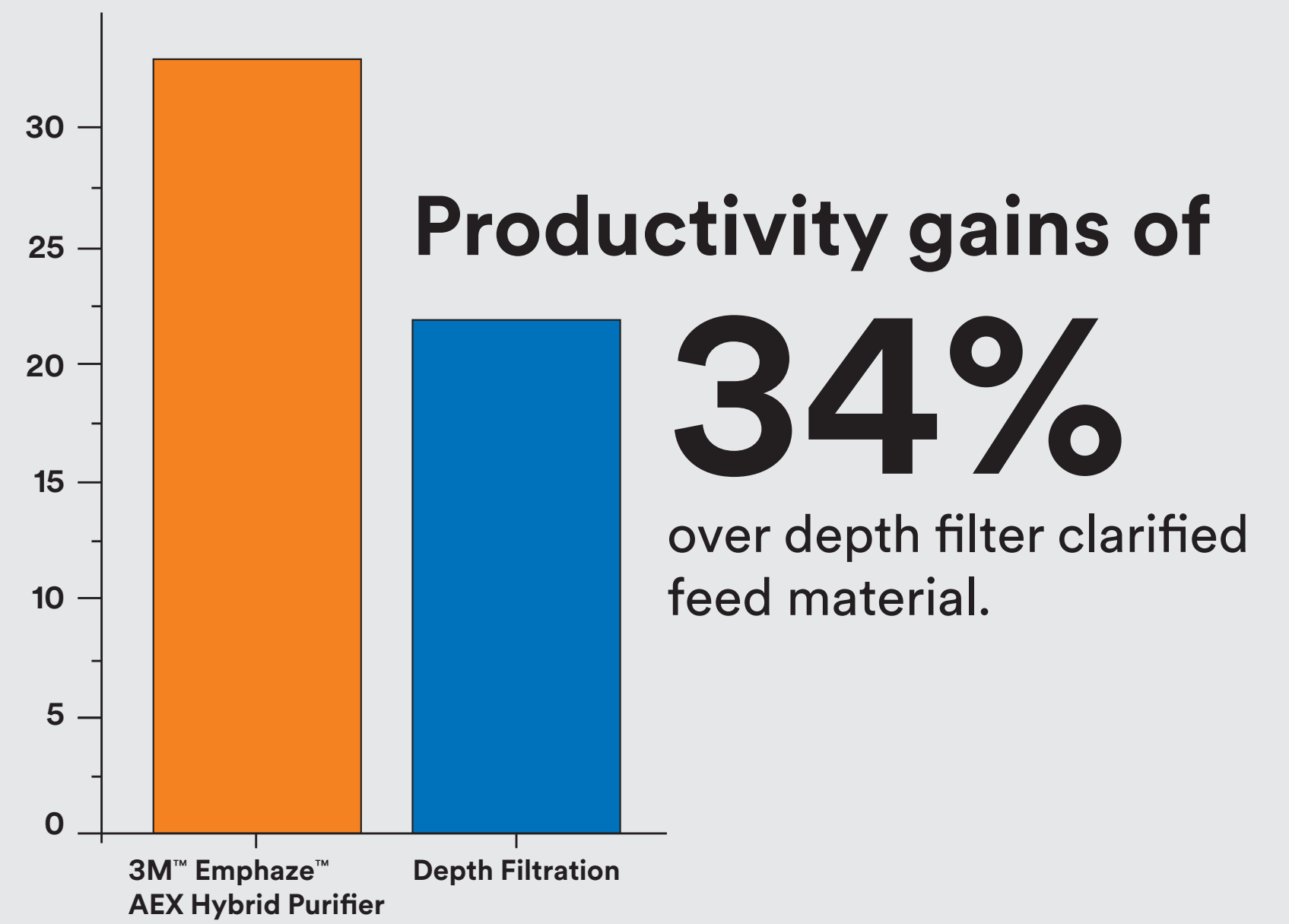
An all-synthetic construction



4 layers Q-functional nonwoven



Anion exchange hydrogel media



3M™ Emphaze™ AEX Hybrid Purifier clarified feed material



DNA



Chromatin

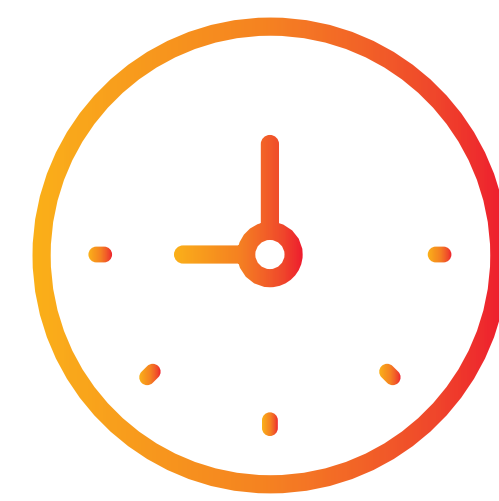


HCP Concentration

shorter regeneration time



on protein A column



Shorter regeneration time allows use of lower loading residence times increasing productivity.

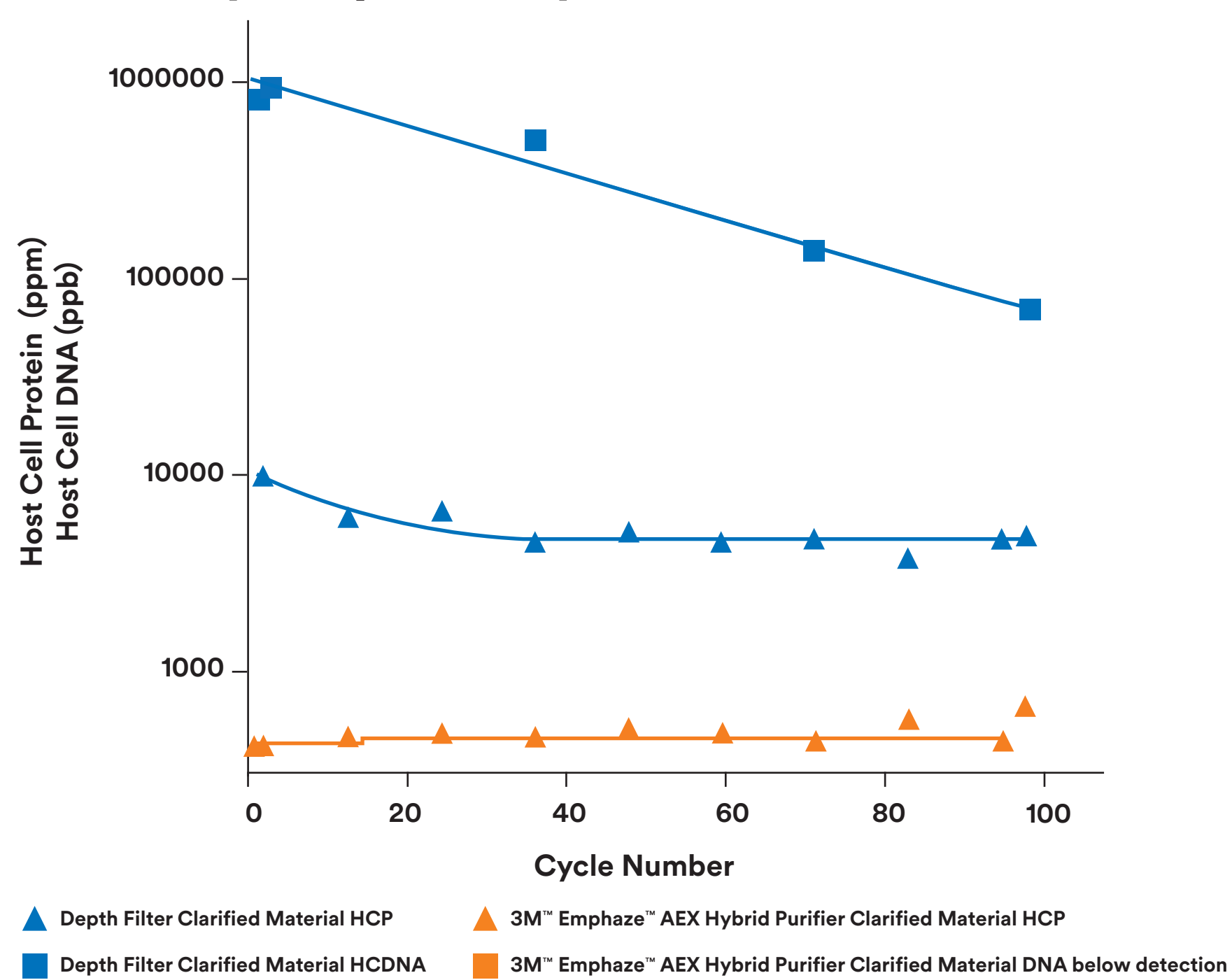


Aids simplification of PCC by allowing reduced #of columns

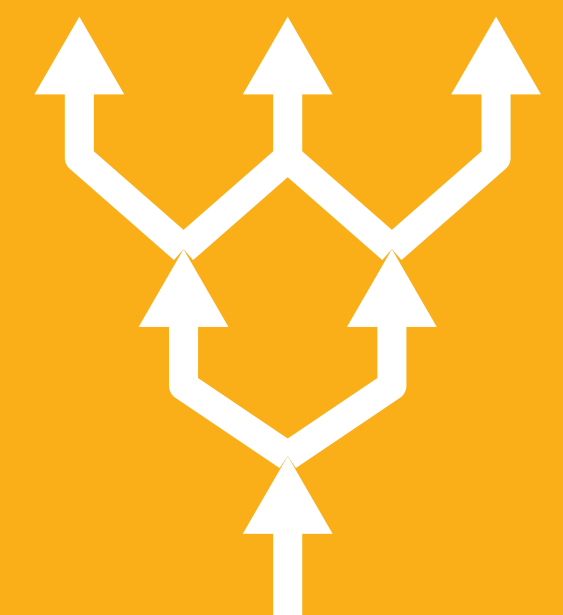


Shorter regeneration time and process simplification leads to cost savings

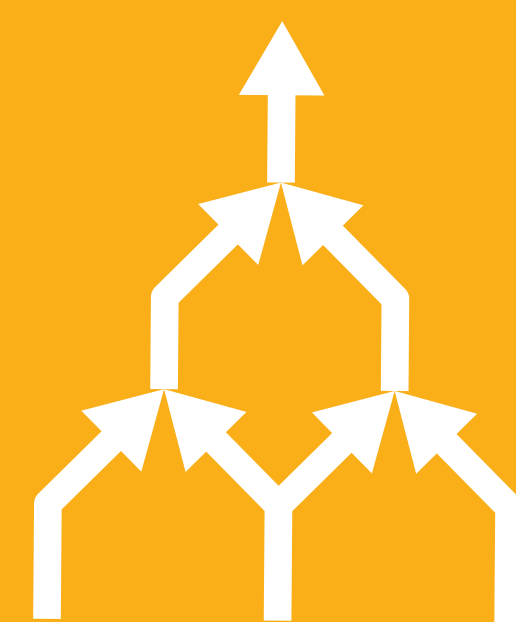
Impurity levels post Protein A PCC



Benefits to Continuous Processing



Increased Productivity
• Cost Savings



Reduced Complexity
• Less Columns



Reduced Fouling
• Less Chemicals

HCP concentration approximately

11 x lower

than that of the depth filter clarified material

DNA 4.4 log lower



Standard depth filter clarified feed material

3M Emphaze Hybrid Purifier clarified feed material

Difference Between Pre and Post Use Pressure Drop

0.30 bar
4.4 psi

0.10 bar
1.5 psi

Data based on research outputs of a collaborative research project between UCL and 3M.

The results outlined here were achieved using the 3M™ Emphaze™ AEX Hybrid Purifier which can be easily incorporated into a batch or continuous process, in a scalable fashion, without adding additional separate unit operations. Further detail available in research article form on request.

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