

Molecular
Dimensions

The Modern Crystal Growth Quartet



JCSG-*plus*TM

An optimized sparse matrix screen of classic and modern conditions devised at the Joint Centre for Structural Genomics¹ and developed further by Newman and Perrakis² at the Netherlands Cancer Institute.

- Optimized sparse matrix screen.
- Reduced redundancy.
- Screens classic PEG and salt conditions.
- Access more areas of crystallization space.
- Neutralised organic acids: Formate, acetate, citrate, succinate, malate, malonate³.
- More organic and polyalcohol conditions.
- Precipitant synergy.
- Wide pH range 4.0 – 10.0.

References

1. Page *et al* (2003), Acta Cryst. **D59**, 1028-1037.
2. Newman *et al* (2005), Acta Cryst. **D61**, 1426-1431.
3. McPherson *et al* (2001), Protein Science **10**, 418422.

MorpheusTM

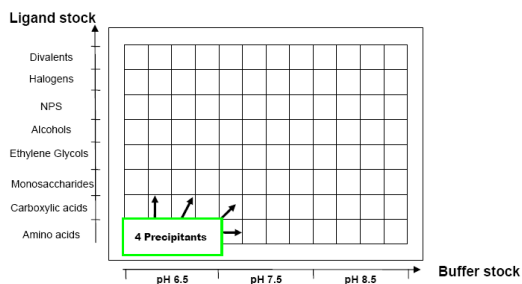
A 96 condition crystallization screen with original chemistry incorporating a range of low molecular weight ligands found ordered in more than 33000 PDB structures.

Developed and utilized in the world renowned Laboratory of Molecular Biology, (Cambridge, UK) and manufactured by Molecular Dimensions under an exclusive licence from the Medical Research Council. This unique screen aims to unlock novel chemical space previously inaccessible using conventional screens.

- Simple and effective 3D grid design covering a range of pH, PEGs and salt additives.
- 49 low molecular weight ligands promote both initial crystal formation and lattice stability.
- Reduced crystal "stress" - all conditions are cryo-protected.
- Derived from extensive data mining of over 33,000 PDB entries.

Reference

Gorrec F. (2009), J. Appl. Cryst. **42**



Schematic of the MorpheusTM - a three-dimensional grid screen



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PACT *premier*TM

PACT premier is a pH, Anion, Cation crystallization Trial devised to test pH within a PEG/Ion screen environment. This is one of the most effective systematic screens available to date.

The screen was developed by Janet Newman, and was tested in the laboratory of Anastassis Perrakis at the Netherlands Cancer Institute as part of the SPINE programme, and is manufactured under license by Molecular Dimensions.

- A modern, comprehensive PEG/ion screen.
- This 96 condition screen is really 3 screens in one:
 1. 24-well pH/PEG screen.
 2. 24-well cation/PEG screen.
 3. 48-well anion/PEG screen.

References

1. Newman *et al*, (2005), Acta Cryst. **D61**, 1426

Evaluation of PACT/JCSG at NKI

# conditions	Screen	Results n=34
96	JCSG plus	18
96	PACT premier	15
192	JCSG plus + PACT premier	20
192 + 576 more	More commercial kits	21

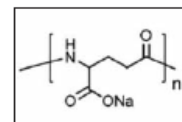
PGA Screen

A revolutionary new systematic screen based on poly-γ-glutamic acid (PGA), the first of the new chemical polymers that exploit poly-amino acids to unlock new areas of crystallization space. The high nucleation-precipitation potential of PGAs enables use at very low concentrations and in combination with classical precipitants, thus scaling down the amount of precipitant necessary for crystal appearance and growth.

This feature of PGAs makes them especially useful in applications for labile, easily precipitating proteins. PGA Screen is suitable for both globular and membrane protein crystallization!

Developed and utilized in the Structural Biology Lab, University of York, UK, and manufactured under an exclusive license.

- Novel precipitant.
- Totally New Crystallization Space.
- Easy mixing properties with other PEGs.
- Applicable to both globular and membrane protein crystallization.
- Especially useful for labile, easily precipitating proteins.



References

1. TC Hu, J Korczynska, DK Smith, AM Brzozowski - Acta Crystallographica Section D: Biological Crystallography, 2008. **D64**, 957-963.

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