Fluidic Analytics

Views from the protein lab

WE WANT TO KNOW WHAT MATTERS TO THE RESEARCHERS WORKING ON PROTEINS

What are you working on? How are you doing it? What matters most to you?
So we asked – and here are the results:

01

What types of proteins do you currently study?

MEMBRANE PROTEINS is the most important study **63.99%**

22.2% of scientists study BIOPHARMACEUTICALS OR ANTIBODIES

16.7% of scientists study SOLUBLE PROTEINS

13.9% of scientists study INTRINSICALLY DISORDERRED PROTEINS

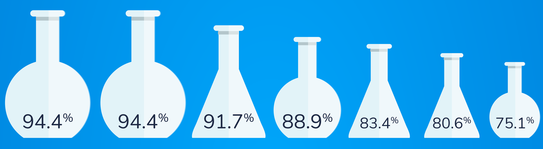
Types of protein studied

We can see that membrane proteins is a very active area, and that's consistent with the literature commentary that this is a large group, with high potential as drug targets, that needs further characterization.[1,2,3]

LEARN MORE ABOUT MEMBRANE PROTEINS

02

Which protein analysis methods do you currently use?



use **SEC** (Analytical Size Exclusion Chromatography)

use **IEX** (Ion Exchange Chromatography)

use **MS** (Mass Spectrometry)

use **DLS** (Dynamic Light Scattering)

use **AUC** (Analytical Ultracentrifugation)

use **MALS** (Multi Angle Light Scattering)

use **ICE** (Capillary electrophoresis)

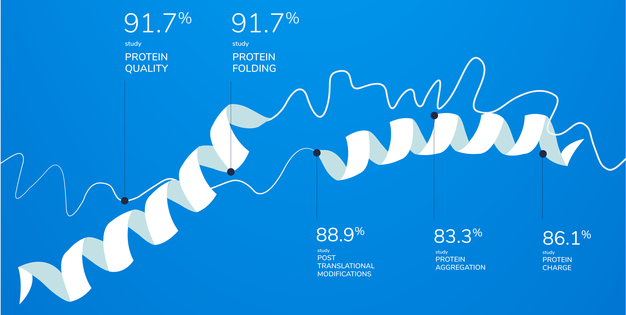
Methods used

SEC and IEX come out as equally important tools in separation. For further characterization Mass Spec is the top choice, followed by DLS. This is a little surprising as DLS struggles with membrane proteins[2,3,4] which are identified as a high priority group.

MORE ON DLS FOR PROTEIN ANALYSIS

03

Which protein properties and behaviors do you currently study?



Properties and behaviours studied

Quality is a top priority for most researchers, which is not surprising given the knock on impact this can have on further analyses. Folding appears as another key area, and is one which is most easily assessed by measuring size.

MORE ON THE IMPORTANCE OF SIZE MEASUREMENT

04

Conclusion

It is clear that protein research is a responsive field, with priorities clearly aligned to recent findings. Maintaining this feedback loop from conclusions of completed work to plans for future work, as well as keeping up to dateon the tools available to get there, will ensure that excellent work continues to emerge.

REFERENCES

1. Membrane proteins, lipids and detergents: not just a soap opera. Anneka M.Seddon, Paul Curnow, Paula J.Booth. 1-2, s.l. : Biochimica et Biophysica Acta - Biomembranes, 2004, Vol. 1666, pp. 105-117.
2. Challenges in the Development of Functional Assays of Membrane Proteins. Louis Tiefneuer, Sophie Demarche. 15, s.l. : Materials (Basel), 2012, Vol. 5, pp. 2205-2242.
3. The use of blue native PAGE in the evaluation of membrane protein aggregation states for crystallization. Ma J, Ma D. 41, s.l. : Journal of Applied Crystallography, 2008, Vol. 1, pp. 1150-1160.
4. Effects of PEG on detergent micelles: implications for the crystallization of integral membrane proteins. Lipt, Carl-Hitschrich V Vladimir Aseyev John Wienczek Patrick J .7, s.l. : Acta Crystallographica Section D Structural Biology, 2003, Vol. 57, pp. 1020-1029.

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