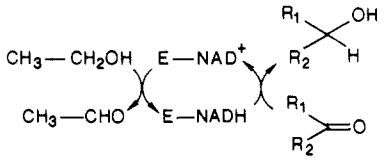
photometry[99] and the coenzyme is firmly bound. Taking this information into account, we prepared glutaraldehyde cross-linked crystals of the complex LADH–NADH–Me_2SO, in order to study the redox reaction. In the crystals the coenzyme is firmly bound and the redox activity is stable for a long time. Since the coenzyme does not dissociate, a redox system where an alcohol is oxidized while a carbonyl compound is



reduced, is set up.[100] The cross-linked crystalline enzyme is much more stable than the enzyme in solution towards organic solvents, and the stability is increased further by treatment of the cross-linked enzyme crystals with zinc salts. The cross linked LADH–coenzyme crystals are a convenient redox catalyst, and their use in a flow reactor can be envisioned.

This approach offers a new solution to the problem of coenzyme recycling, which is of great concern for the use of dehydrogenases as catalysts in organic chemistry.[101]

Concluding Remarks

We would like to emphasize two points. First it is a great benefit to crystallographers working with large biological molecules to interact not only with biologists but also with chemists who are able to design organic molecules as aids for attacking the structural problems. The second is that it is most useful for chemists to use the structure of these large biological molecules to relate their results to the structure and to conceive new questions.

We gratefully acknowledge the valuable contribution of the co-workers whose names appear on the articles quoted in this Account. Acknowledgements is also made to the Centre National de la Recherche Scientifique and to the Conseil Suédois de Recherches en Sciences Naturelles.

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CORRESPONDENCE

High Tech + Illiteracy = State-of-the-Art Science?

Contrary to popular belief more sophisticated equipment does not always help to generate better scientific results. As a journal editor and referee I am regularly confronted with experimental data where the compounds isolated are characterized by a *melting temperature* rather than a *melting range*. According to the usual convention this implies that the solids in question possess melting ranges of less than 0.5 °C. While this may indeed be so in rare cases of exceptional purity (typically requiring zone melting etc.) a more likely explanation would be that most of these data pertain to samples of ordinary purity (i.e., suitable for elemental analysis) from laboratories equipped with automatic melting point apparatus and manned by mediocre chemists.

The common types of automatic melting point apparatus record the temperature where the sample reaches a predetermined degree of transparency rather than the start and end temperatures of the melting process, the actual measure of a solid's fusion behavior short of a full differential thermal analysis. Thus, while automatic melting point apparatus is a boon wherever large series of uniform samples have to be processed, it can definitely not replace the good old-fashioned determination of the melting range under the microscope.

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