

Chapter 4

Staining and Histochemical Methods

This chapter describes essential and non-essential staining and histochemical techniques used in the assessment of muscle pathology. A standard batch of methods should be performed on each muscle biopsy regardless of the clinical diagnosis. This batch may vary slightly from one laboratory to another, e.g. the phosphorylase technique may be carried out routinely in some laboratories while only performed in others if the clinical diagnosis indicates a possible metabolic disorder. Additional methods are applicable in specific circumstances. Techniques used are outlined in Table 4.1.

Haematoxylin and Eosin (H and E)

Use

This common staining method provides information on general muscle fascicular architecture, fibre size and shape, position and number of cell nuclei, inflammatory change, cytoplasmic basophilia and nerve fibres. Cross striations are visible in longitudinal paraffin sections.

Table 4.1 Staining and histochemical techniques

<i>Routine</i>	<i>Occasional</i>
Haematoxylin and eosin (H and E)	Phosphotungstic acid haematoxylin (PTAH/MPAH)
Van Gieson (IVG)	Methyl green pyronin
Modified Gomori trichrome (Engel's trichrome)	Methylene blue vital staining
Oil red O (ORO)	Sudan black
ATPase pH 9.4	Succinate dehydrogenase (SDH)
ATPase pH 4.3 and 4.6	Cytochrome oxidase
NADH	Myadenylate deaminase
Acid phosphatase	Phosphorylase
PAS	Phosphofructokinase (PFK)
	Alkaline phosphatase
	Non-specific esterase
	Acetylcholinesterase
	Acetylcholinesterase/silver impregnation