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Metabolism of methylamine by semicarbazide-sensitive amine oxidase in white and brown adipose tissue of the rat.

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Abstract

The metabolism of [14C]methylamine (MA) by amine oxidase activity in rat white and brown adipose tissue homogenates, and in mature adipocytes from these tissues has been studied. Oxidation of MA was completely inhibited by 0.1-1 mM semicarbazide, without being affected by the monoamine oxidase (MAO) inhibitor, pargyline (1 mM), indicating that MA is metabolized by semicarbazide-sensitive amine oxidase (SSAO) and not by MAO. The mean Km for MA deamination in all of these sources was around 250-300 microM. SSAO activity towards MA was also demonstrated in white and brown pre-adipocytes, transformed to the adipose phenotype by treatment in culture for 7 days with lipogenic agents. These results are similar to previous findings that SSAO in vascular smooth muscle is able to metabolize aliphatic amines such as MA, and furthermore suggest that SSAO may play a role in adipose tissue function and/or maturation.

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