The 'Vth Scandinavian Meeting on Radioimmunotargeting', Umeå, Sweden, February 25–27, 1998

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The 'Vth Scandinavian Meeting on Radioimmunotargeting' was arranged in Umeå this year. The first meeting on the same topic was also held in Umeå, in 1989, the second in Lund, 1990, the third in Helsinki, Finland, 1992 and the fourth in Lillehammer, Norway, 1995. Contributions from the last two meetings have been published in *Acta Oncologica* 32(7/8) 1993 and *Acta Oncologica* 35(3) 1996. The ambition of the organizers this year was to publish selected full-length papers within one year of this meeting and we appreciate the generosity of the editors of *Acta Oncologica* in affording us the opportunity to fulfil this task.

During the Vth meeting technical improvements in radioimmunolocalization and radioimmunotherapy were addressed. Different aspects on the properties of target antigens, metabolic turnover of both antibodies and antigens, immunological networks, radiobiology, dosimetry, multistep procedures as well as clinical and experimental results were presented.

In recent years the interest in and recognition of both radioimmunotherapy (RIT) and radioimmunolocalization (RIL) in both a clinical and experimental context have increased significantly. Several improved or optimized approaches have contributed to this trend—probably the most important being the successful treatment of several haematopoietic neoplasms in patients with radiolabelled antibodies, as performed by O. Press and collaborators. These lymphoid tumours are both radiosensitive and accessible for targeted immunotherapy and it seems reasonable to assume that these new therapeutic modalities will find a place in the management of such patients in the near future. For most human and experimental solid tumours, continuously increasing doses can be delivered, although the heterogeneity of antigen expression, poor vascularization of the tumours as well as antibody penetration and saturation of target sites are still parameters for improvement.

Some trends can also be seen in the panorama of target antigens for RIL and RIT. Some of the earlier widely used targets, such as α-fetoprotein and human chorionic gonadotropin (HCG) are tending to disappear. Hormone receptors, differentiation antigens (specifically expressed in defined tissues) or bulk antigens (such as insoluble deposited cytokeratins in significant amounts in necrotic regions) are increasingly used and may attract attention in the future. Their selective tissue expression or immunochemical availability in quantitative terms affects the efficacy in these procedures. It is also interesting to note that radioimmunotargeting of conditions other than tumours seems to have increased significantly and target antigens for granulocyte accumulation in abscesses (NCA), heart infarction (myoglobin), or thromboses (fibrin) have been introduced, utilizing the same technologies as those used for tumour targeting.

Another research area that has attracted significant interest in order to increase the relative accumulation of antibodies in (experimental) tumours is the different approaches to removing redundant amounts of antibodies. Injections of anti-idiotypic antibodies and selective extracorporeal adsorption of the labelled antibodies can contribute significantly toward decreasing the negative side effects caused by the primary idiotypic radiolabelled antibody. Different two-step procedures can also contribute toward minimizing toxic effects to the bone marrow, intestines or other internal organs, which cause an increase in the dose ratio of tumour:non-tumour tissue.

The steadily increasing use of different recombinant antibodies (i.e. chimeric, humanized or single chain antibodies (scFv)) to minimize the generation of anti-antibodies and to improve clearing or penetration properties is also another significant trend. The affinity properties of the small fragments, however, still have to be optimized, if they are to be comparable with intact IgG antibodies, with the same molecular recognition sites.

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Although several decades have passed since the first demonstrations of functional immunotargeting, several new technologies have renewed the interest in this field. New tests for RIL are available, and RIT has now, for the first time, demonstrated its putative potential as an effective and useful new treatment modality for some tumours within the lymphoid system.