

Oral presentation

Open Access

## Counterattack – a principle of tumour cell metastasation?

N Freudenberg\*<sup>1</sup>, S Göppinger<sup>2</sup>, A Gold<sup>1</sup>, C Galanos<sup>3</sup> and MA Freudenberg<sup>3</sup>

Address: <sup>1</sup>Institut für Pathologie der Universität Freiburg, Germany, <sup>2</sup>Institut für Pathologie der Universität Heidelberg, Germany and <sup>3</sup>Max-Planck-Institut für Immunbiologie Freiburg, Germany

\* Corresponding author

from 35te Tagung der Pathologen am Oberrhein/35th Meeting of Pathologists of the Upper Rhine Region (PATOR)  
The Institute of Pathology, University Hospital Freiburg, Germany. 1 July 2006

Published: 14 March 2007

*Diagnostic Pathology* 2007, **2**(Suppl 1):S25 doi:10.1186/1746-1596-2-S1-S25

© 2007 Freudenberg et al; licensee BioMed Central Ltd.

### Aims

The aim of the present study was to investigate whether tumour cell supernatants of 4 different malignant tumour cell lines with different aggressive behaviour show comparable pathobiological reactions.

### Methods

Mature mouse (C57/Bl6) macrophages were incubated with the a.m. different tumour cell supernatants and followed by the investigation of apoptosis factors using immunocytochemistry. In addition, the experiments were performed with Fas-knock-out mouse macrophages and PCR in order to investigate the involvement of the Fas/FasL system.

### Results

All tumour cell supernatants investigated induced a significant increase of apoptotic activities in macrophages compared with control groups. Interestingly, the tumour cell supernatants showed differences in their intensities of apoptosis-inducing effects on the macrophages one to each other. The Fas/FasL system has been identified as one of the involved factors from tumours which induce apoptoses in macrophages.

### Conclusion

Our observation of the induction of apoptoses in macrophages due to so far undefined tumour cell factors supports the counterattack hypothesis which supposes the active destruction of the tumoricidal cell system by neoplastic cells. For now, the counterattack is an exciting new way for research in tumour immunology and probably offers a therapeutic potential.