

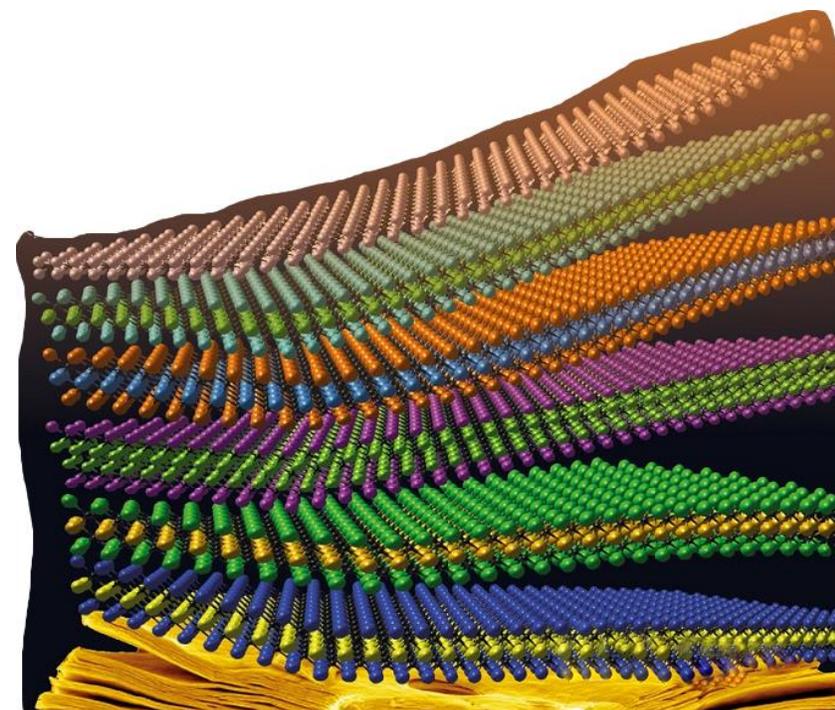


# Visualisation of $Ti_3C_2Tx$ MXenes in eukaryotic cells by Transmission Electron Microscopy



ZMB

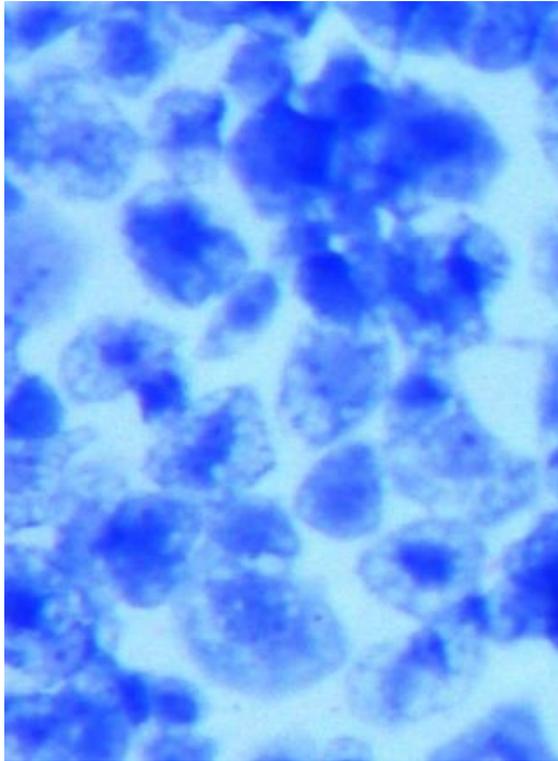
Zentrum für Medizinische Biotechnologie  
Center of Medical Biotechnology



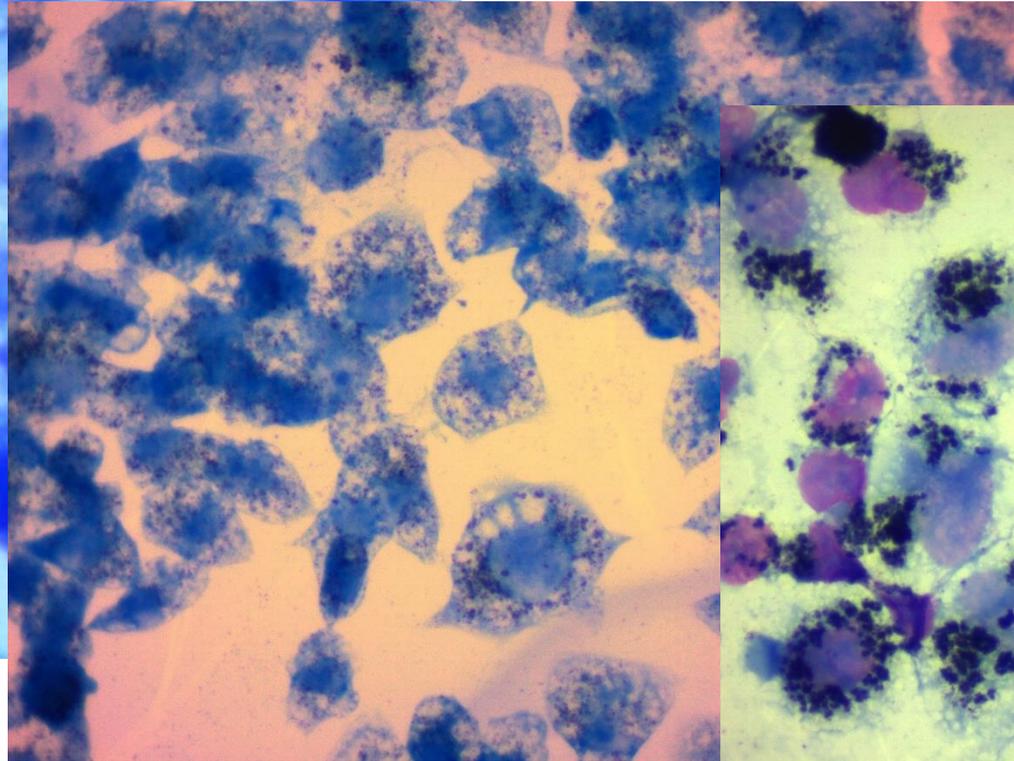
VERBA  
& HEALTH



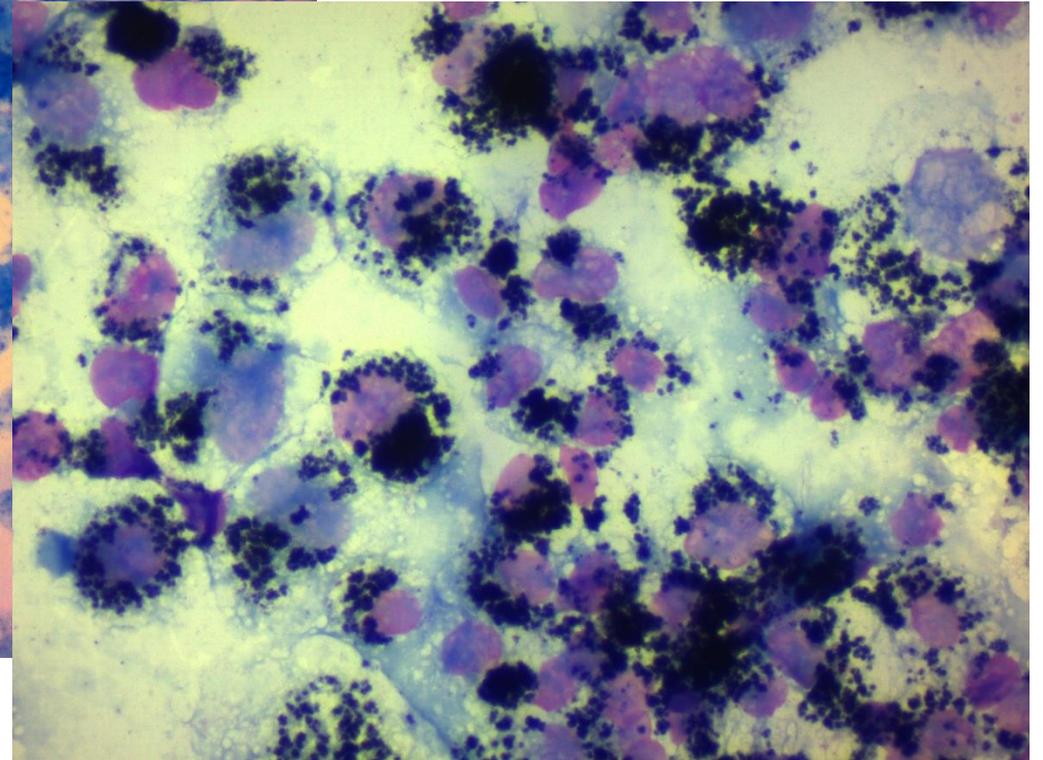
# Ti<sub>3</sub>C<sub>2</sub>T<sub>x</sub> MXenes in human mesenchymal stem cells



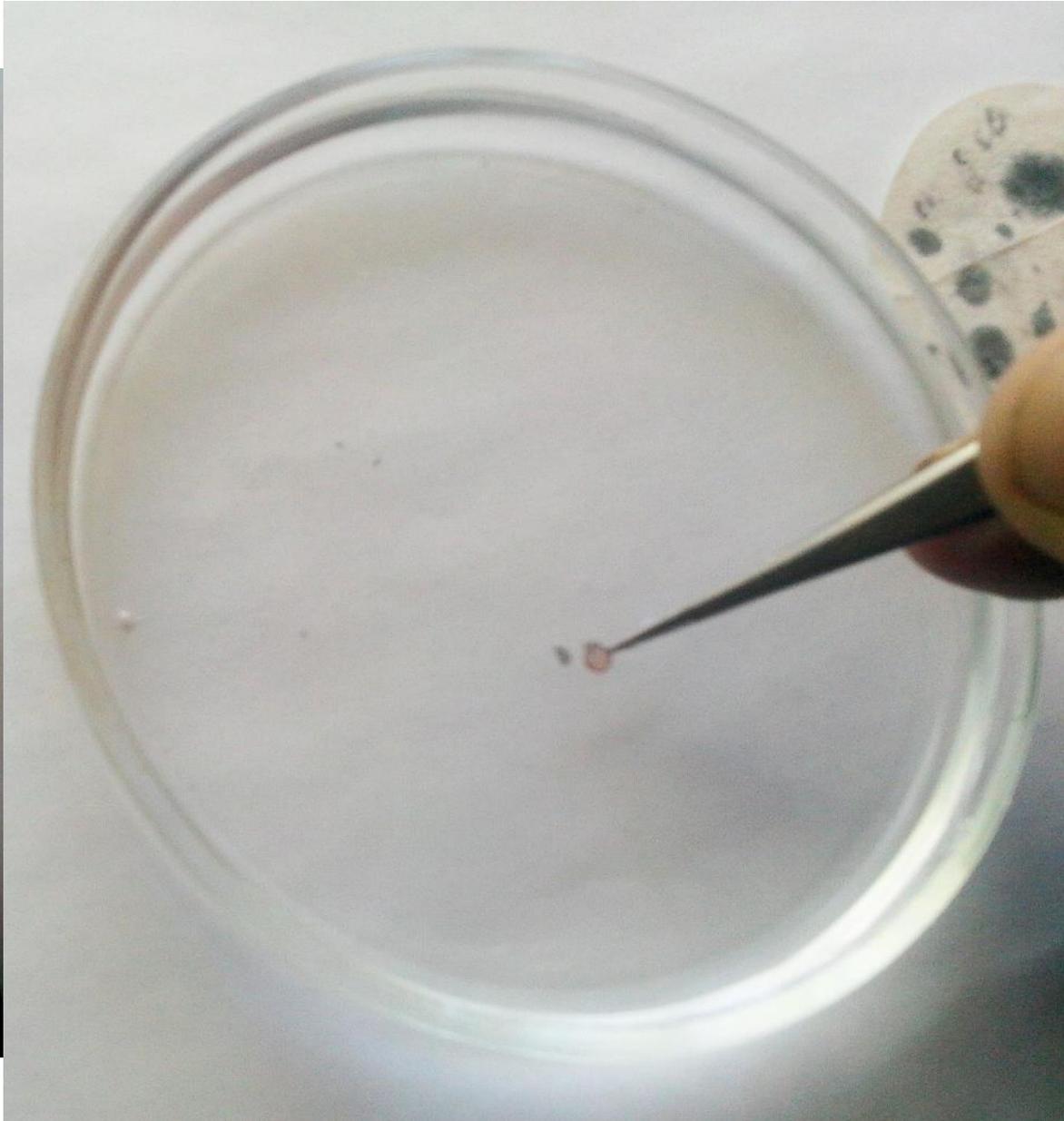
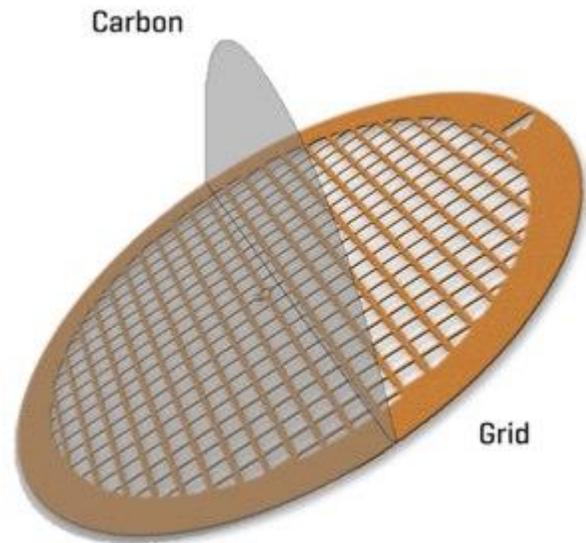
MX0



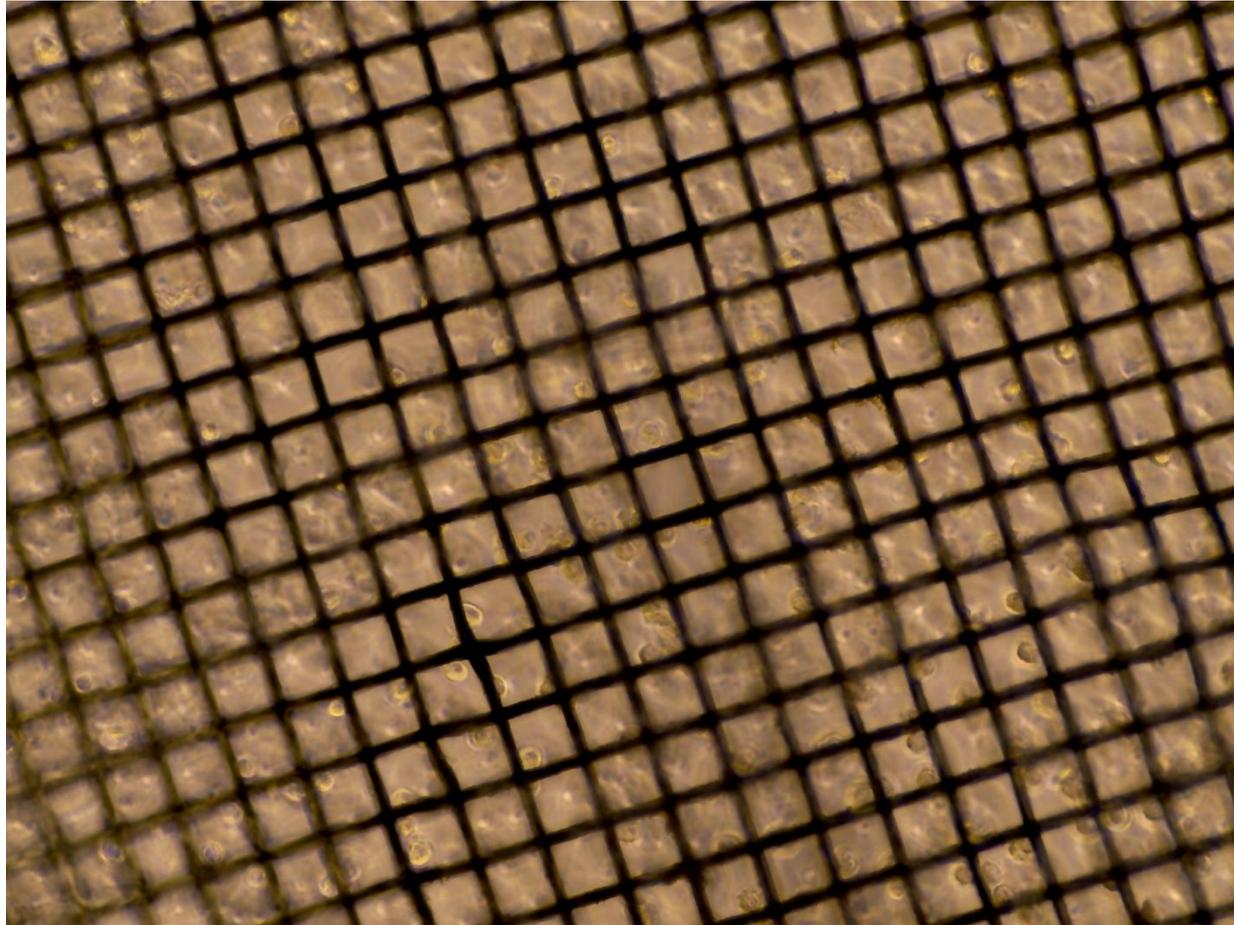
MX+



MX+++

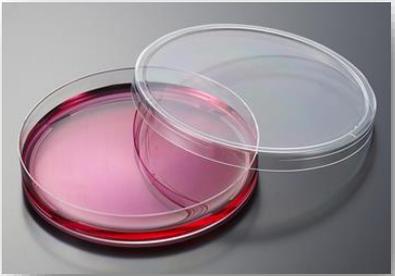


# TEM grids are toxic for the cells!





Carbon film deposition

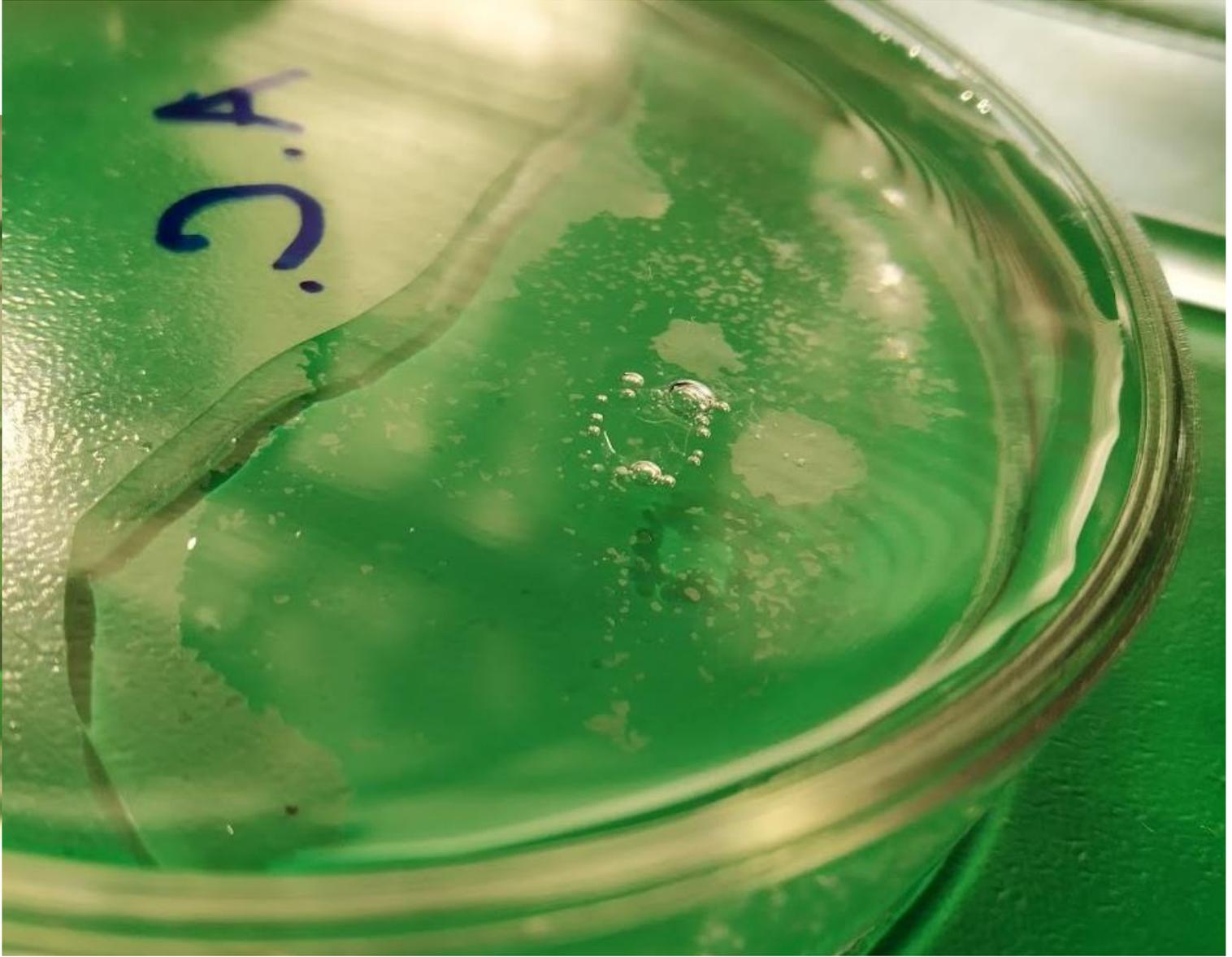


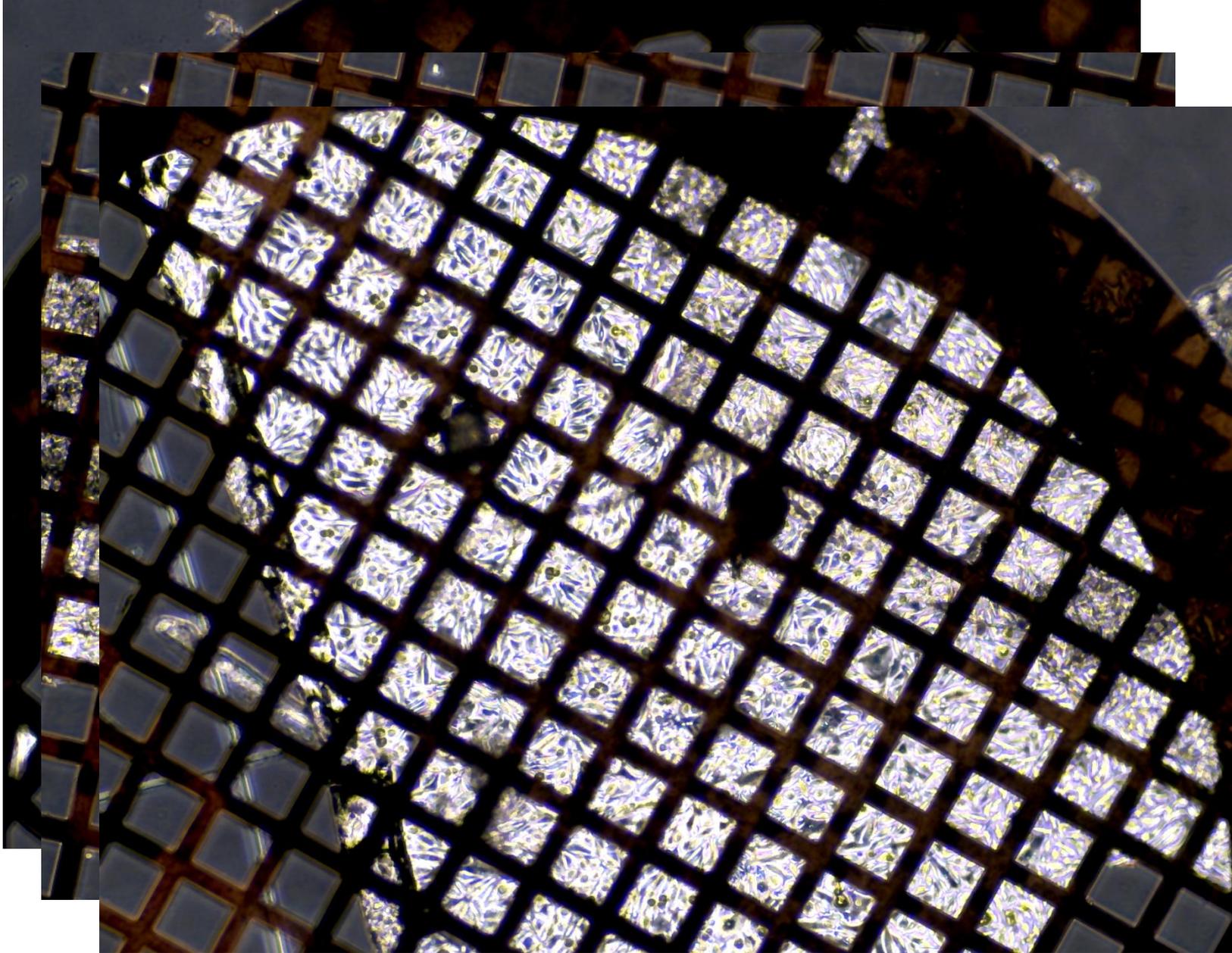
Cell growth

Loading with MXenes

Fixation / dehydration

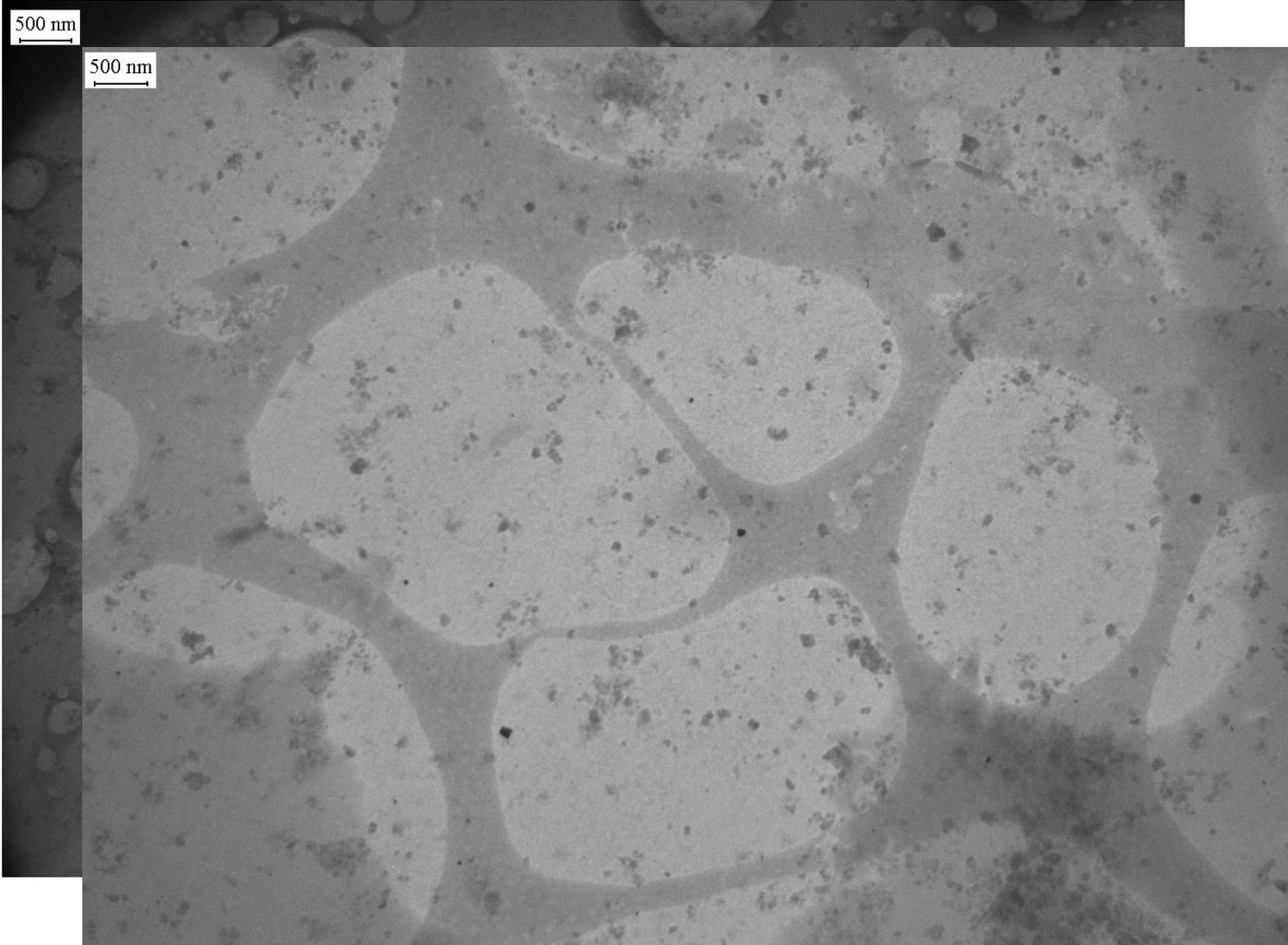


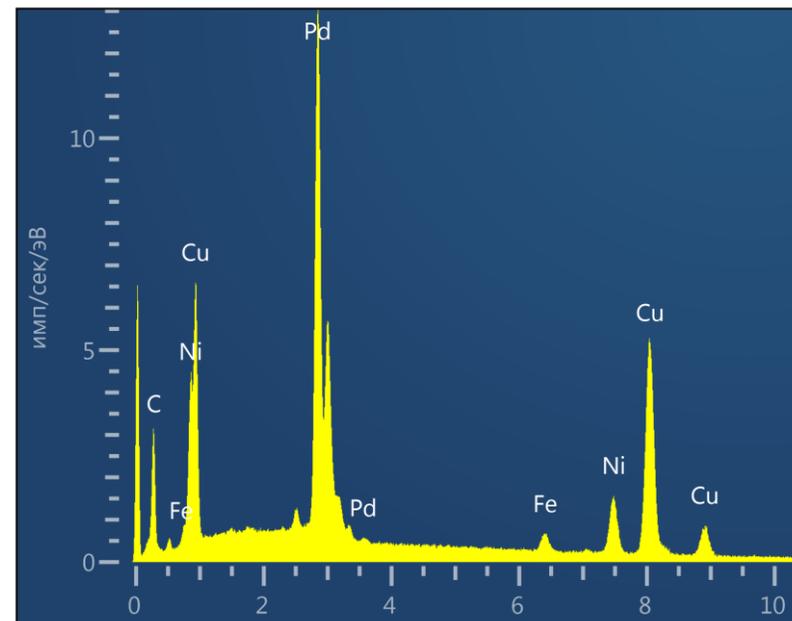
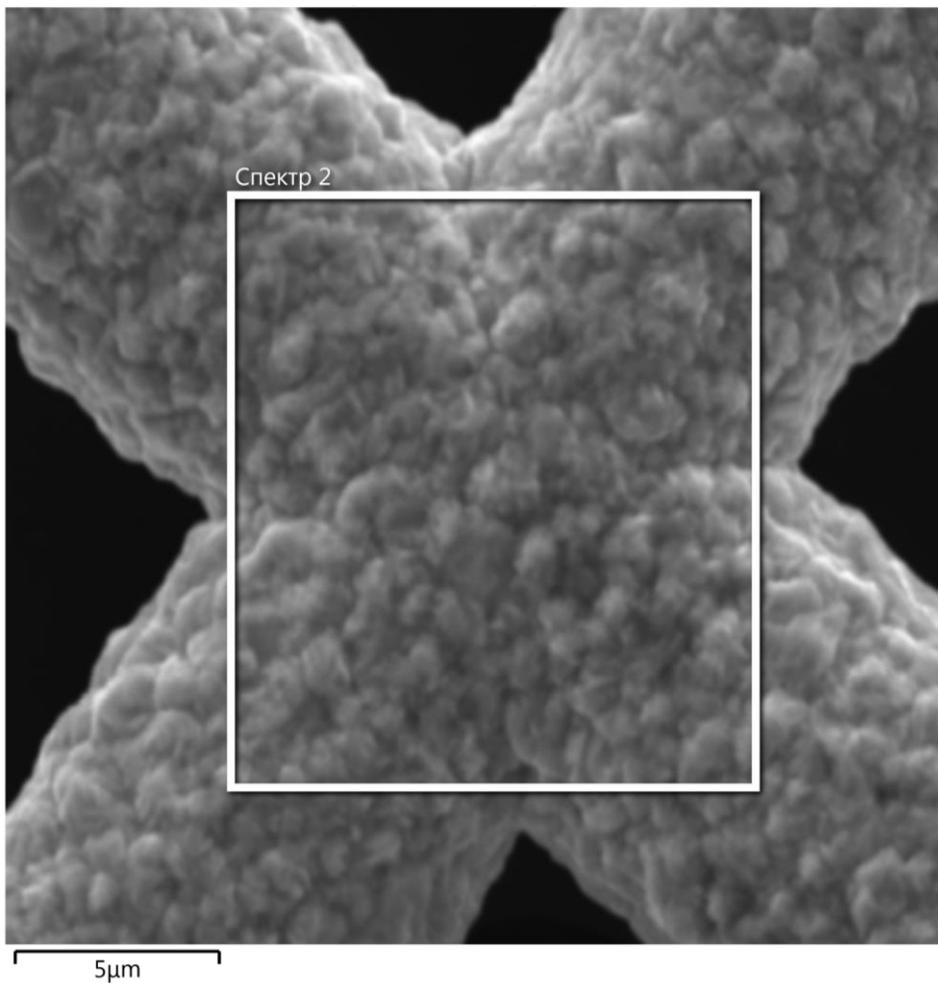




500 nm

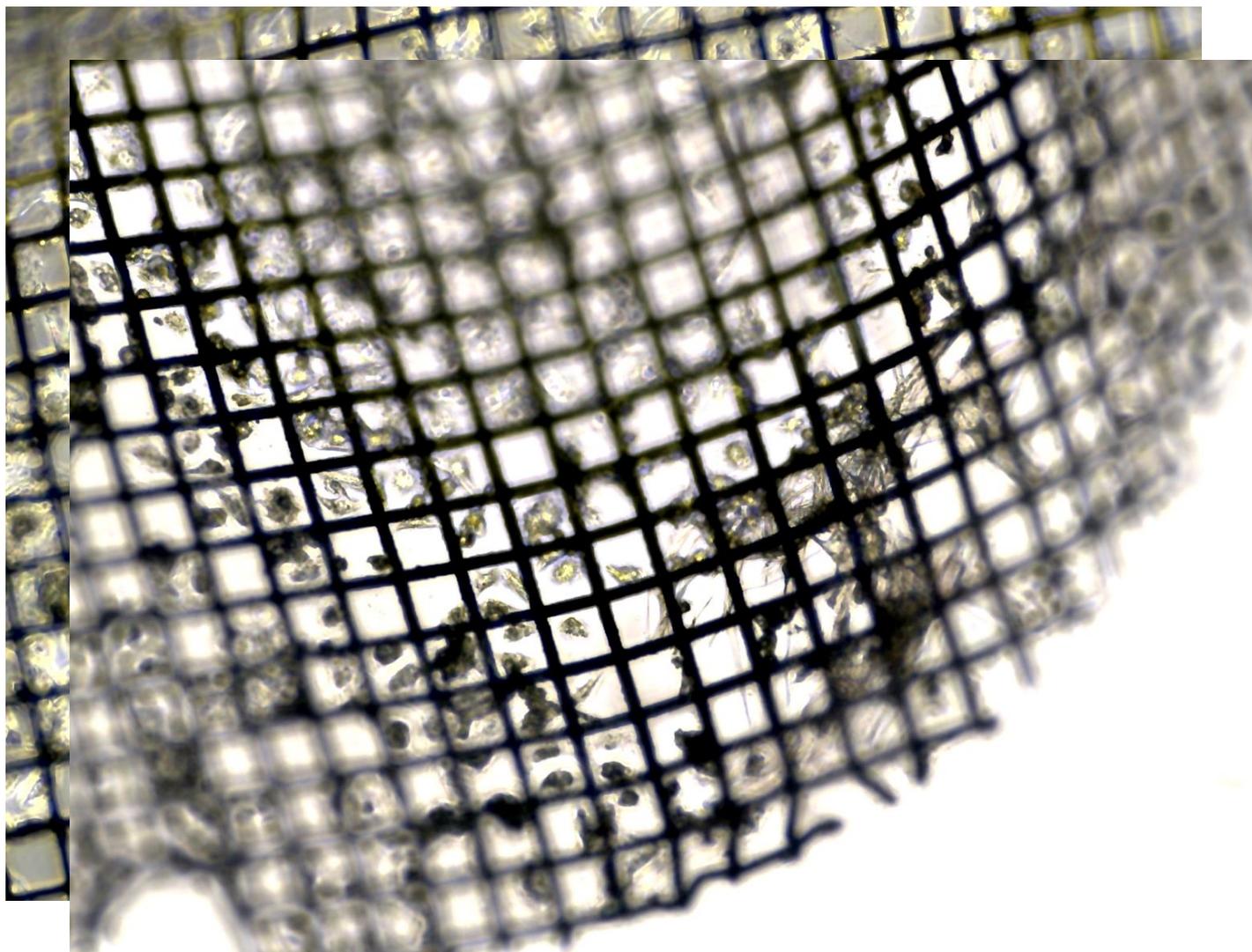
500 nm



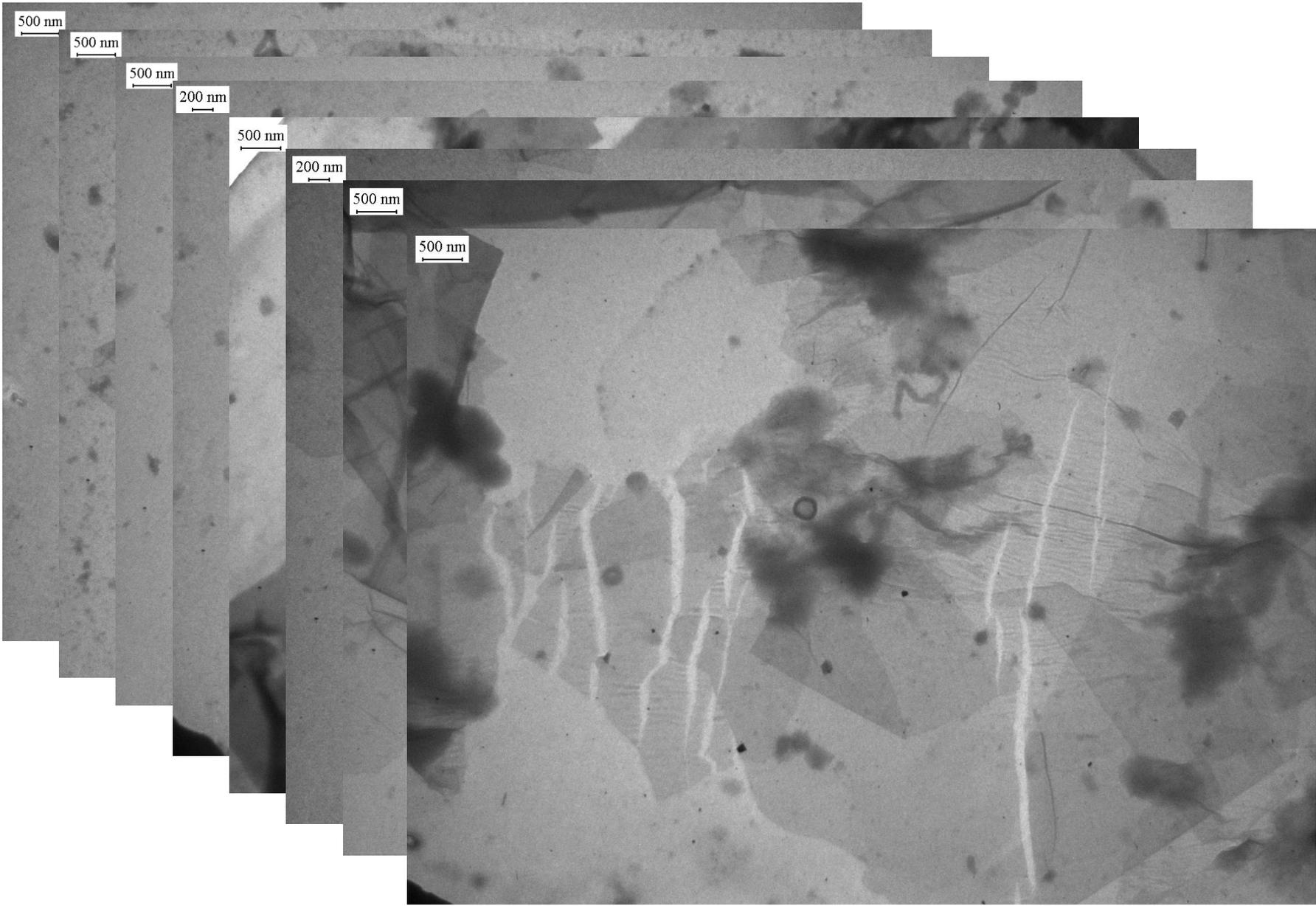


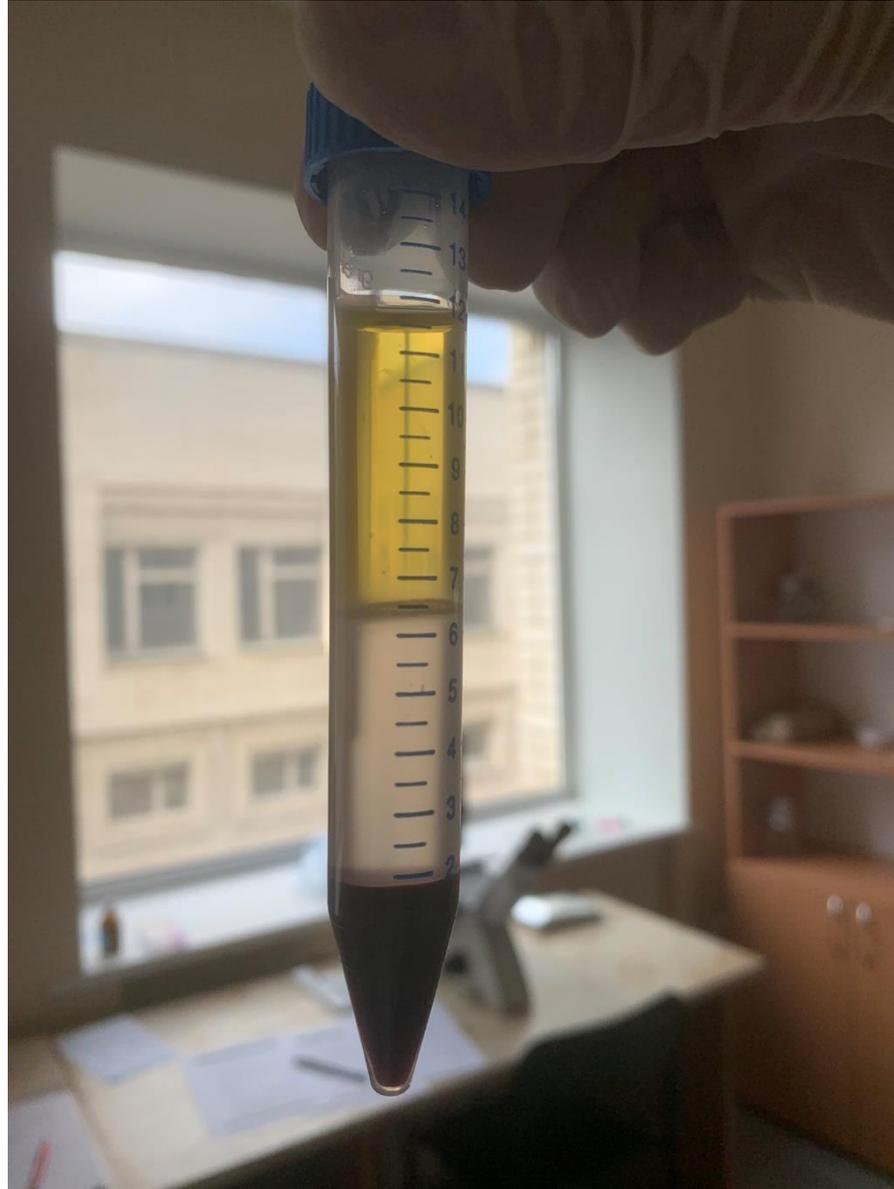
Spectrum 2			
Element	Weight %	Sigma weight %	Atomic %
Ni	8,20	0,17	7,31
Cu	41,62	0,47	34,27
Pd	39,93	0,46	19,64
Fe	1,71	0,08	1,60
C	8,54	0,91	37,18
<b>Total</b>	<b>100,00</b>		<b>100,00</b>

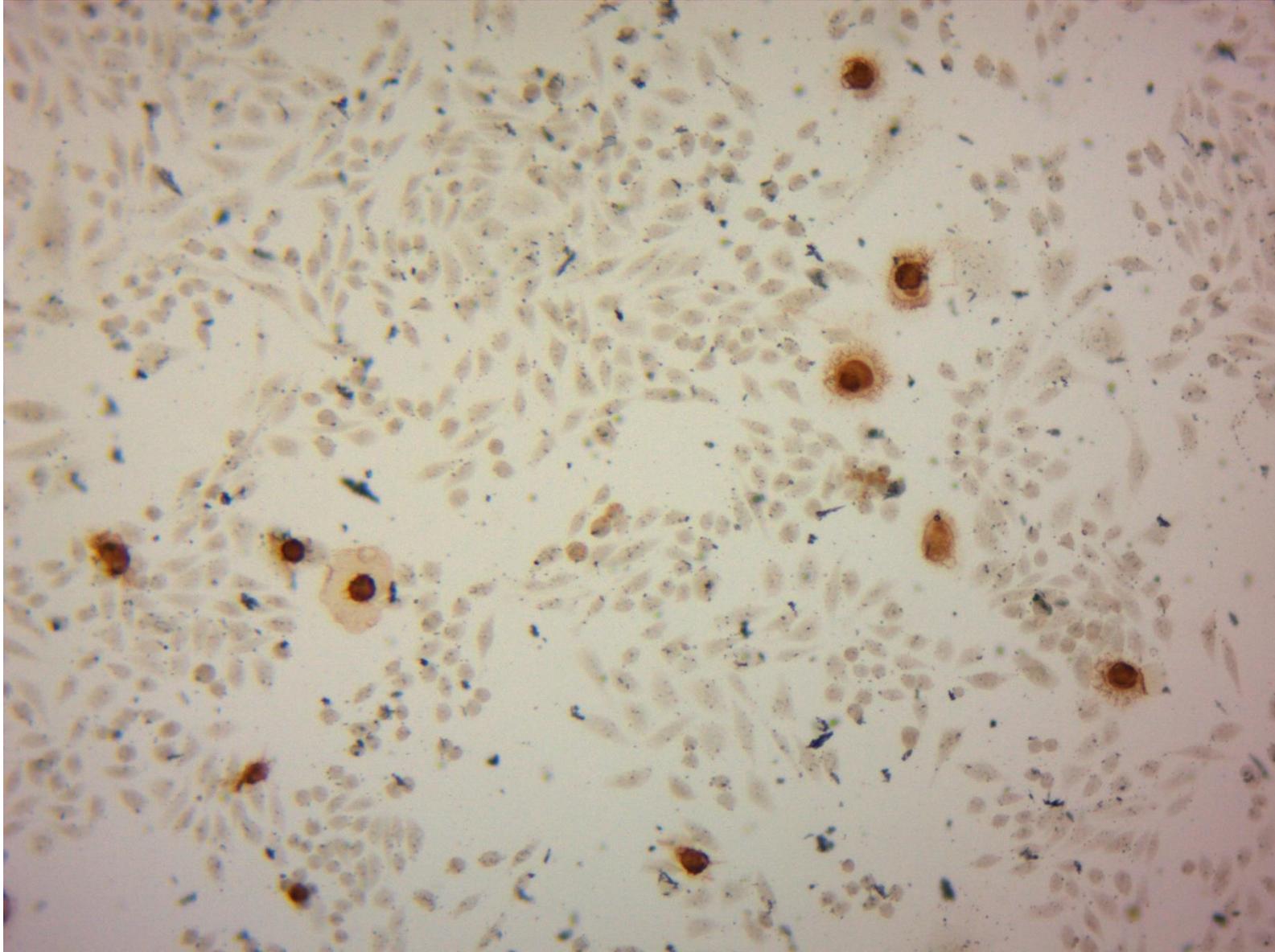
# Pd/Cu grids are compatible with cell cultures!



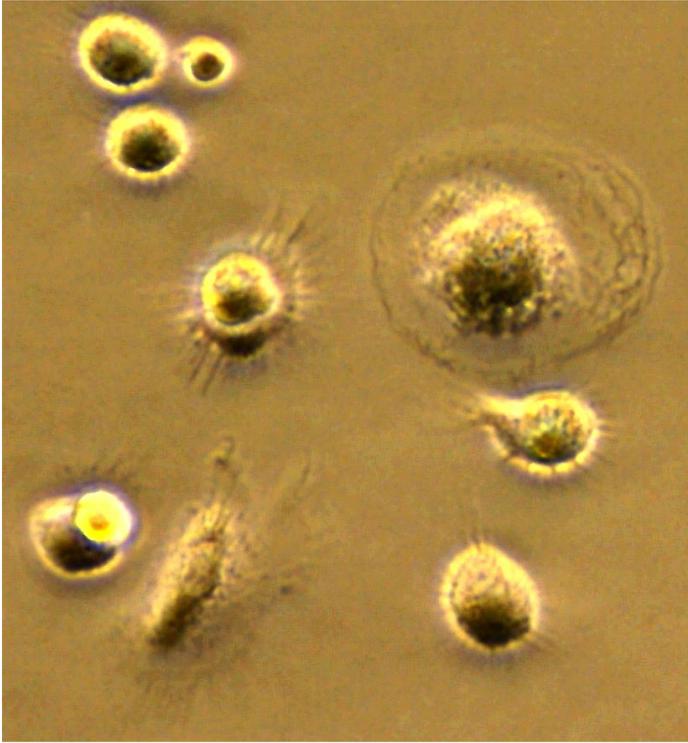
# TEM images of $Ti_3C_2Tx$ MXenes within the cells







- Macrophages will recognize the MXene particles and will engulf them, which will follow by metabolization/processing of MXenes



- MXenes can be modified by biological agents in order to render them more biocompatible and e.g. enable their addressed homing to specific sites, for instance to tumours



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МЕДИЧНИЙ  
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