

Role and clinical interest of membrane GRP78 against ovarian cancer

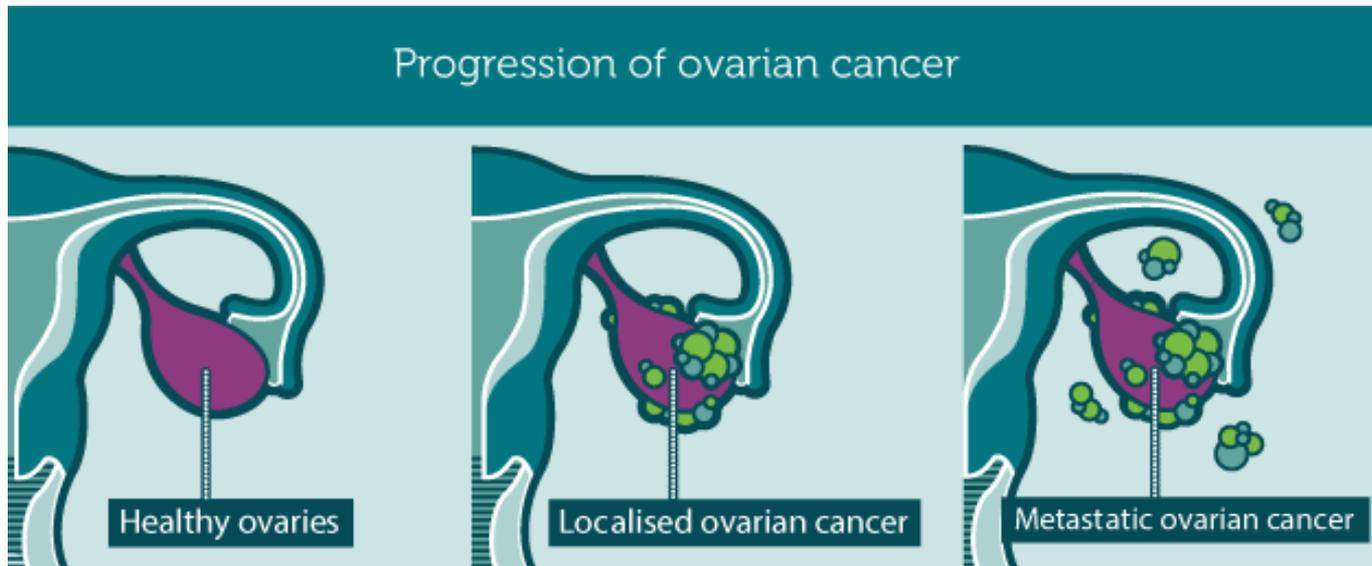
Kylie Van Hoesen

Laboratory of gynecologic tumor and development biology



Ovarian Cancer

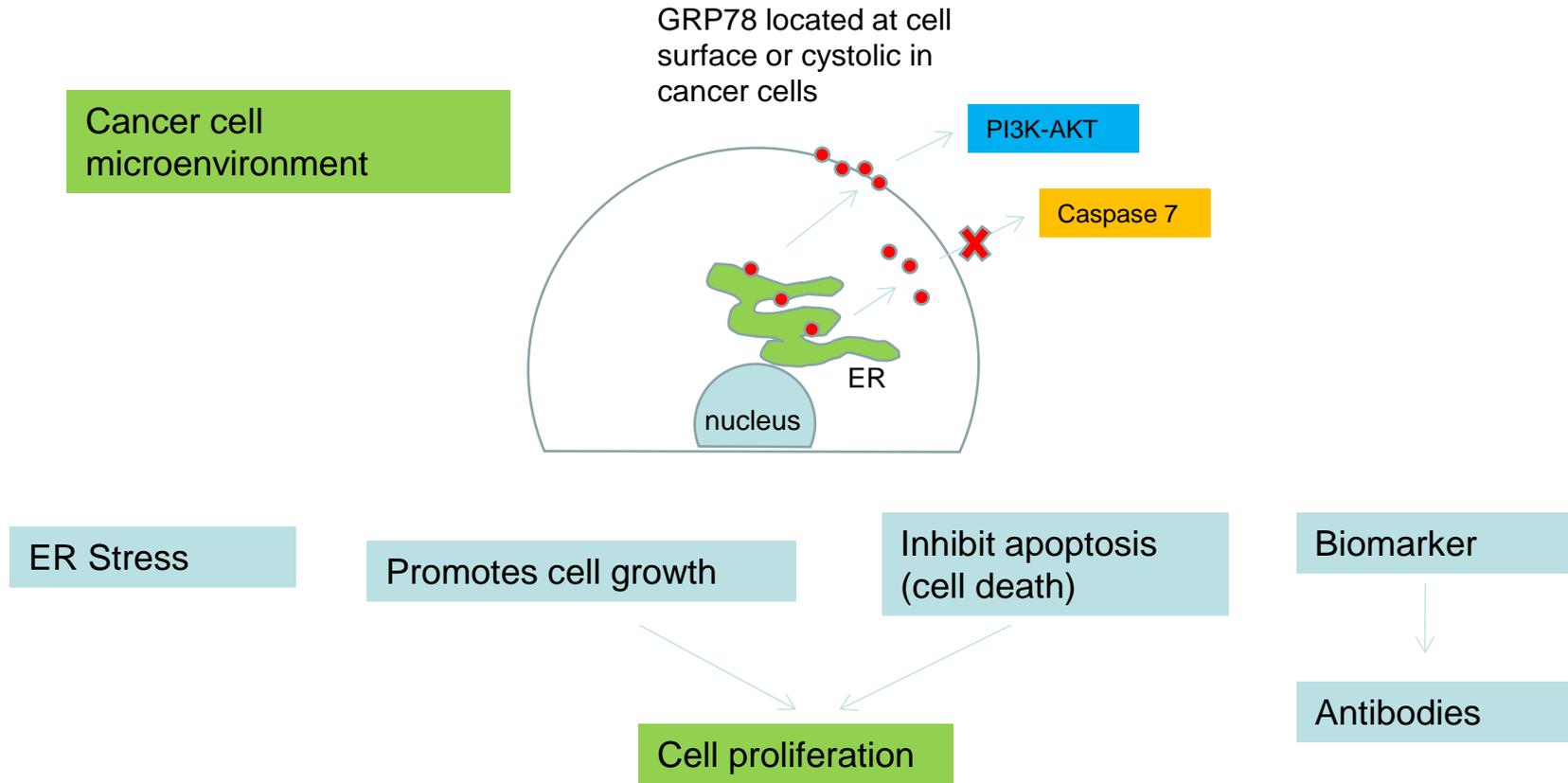
- Lowest survival rate of all female cancers
- No annual test to detect ovarian cancer
- Resistance to chemotherapy and high rate of recurrence



<http://ovariancancerday.org/about-ovarian>

What is GRP78?

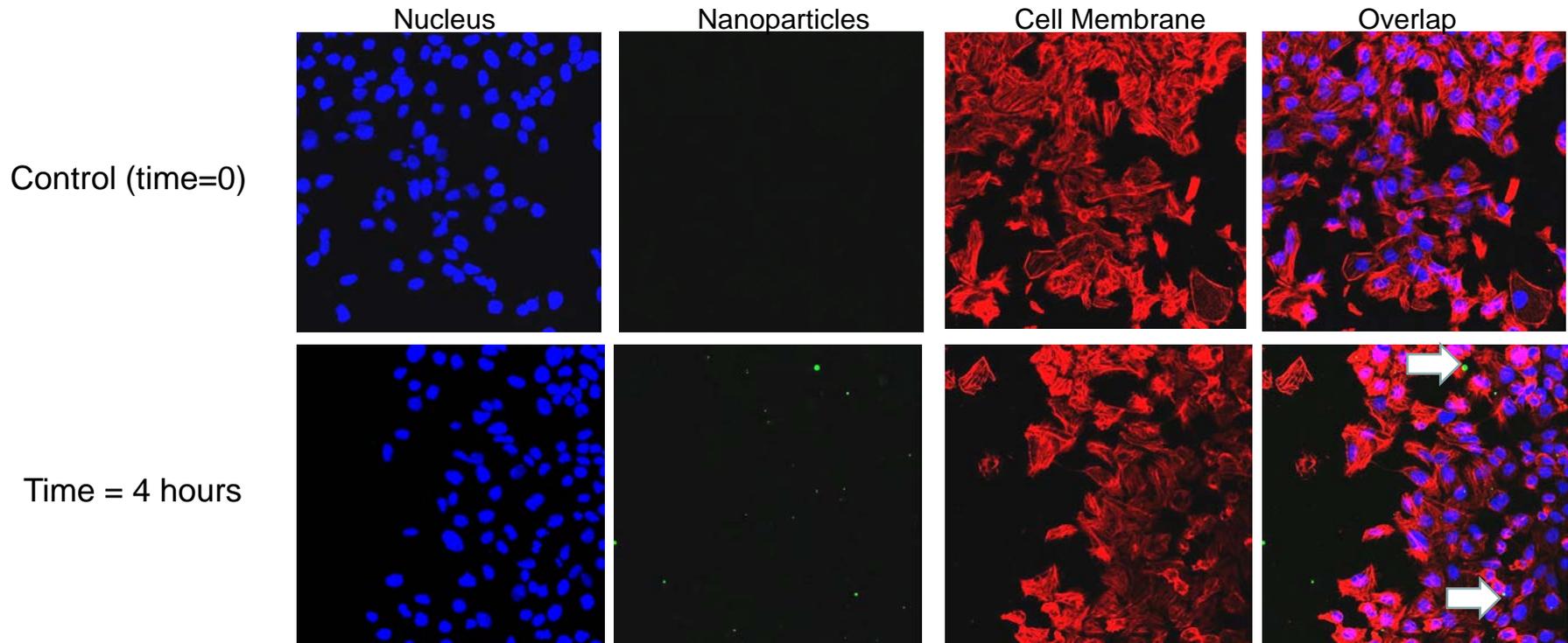
Normal function: Chaperone protein located in the ER = fold proteins



Nanoparticles

- Tiny spheres (50-800 nm) that can be loaded with drugs
- Enhanced permeability and retention

Internalization kinetics (COV318 Cell Line)

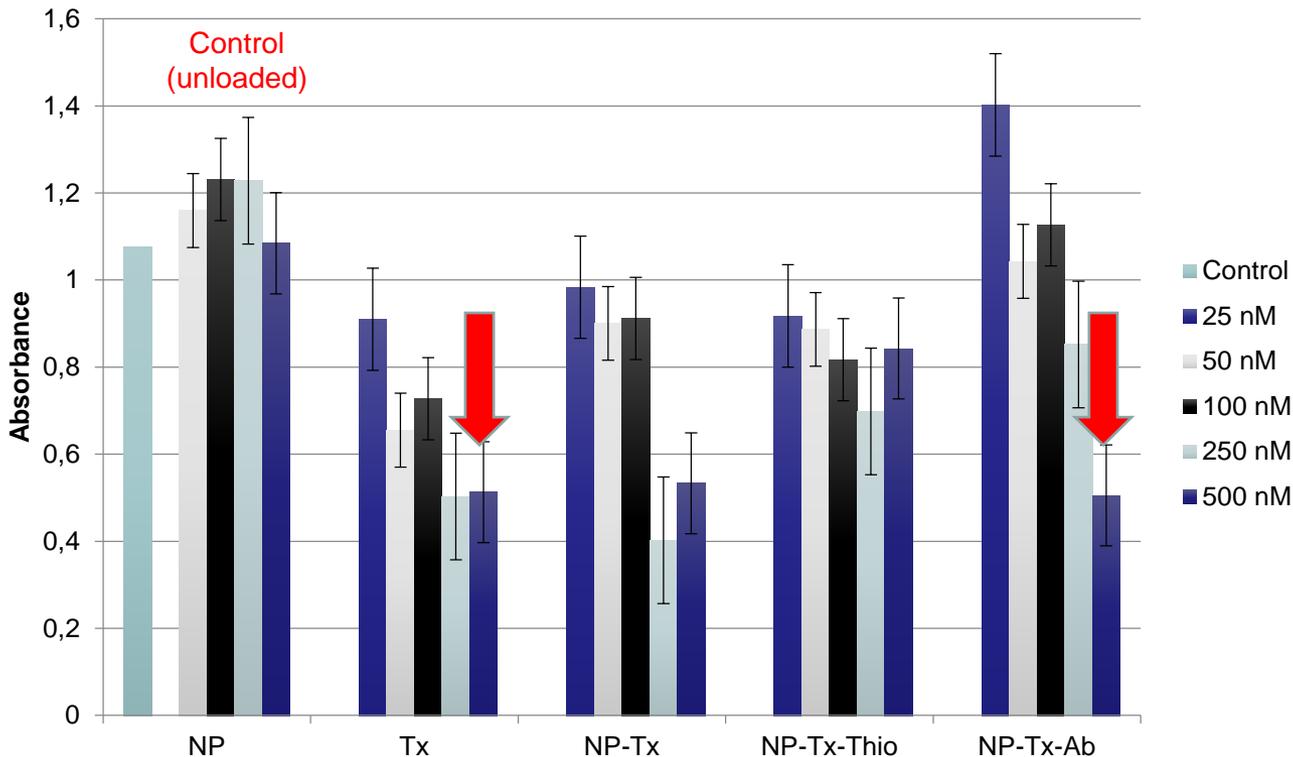


Coupling nanoparticles

Actively targeted drug delivery by coupling nanoparticles to antibodies that can recognize specific sequence of GRP78

In vitro: Cell viability assay

COV318 Cell Line 29.10.15



Results:
Coupled nanoparticles decrease cell viability

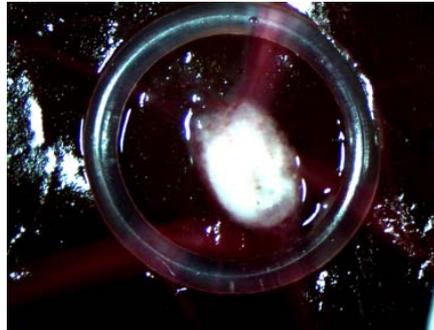
In vivo: Fertilized chicken eggs

Control: Growth = +17.85%

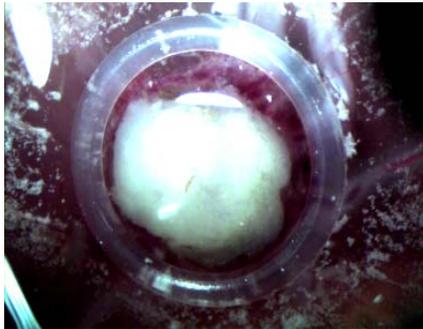


COV318-DMEM T=0

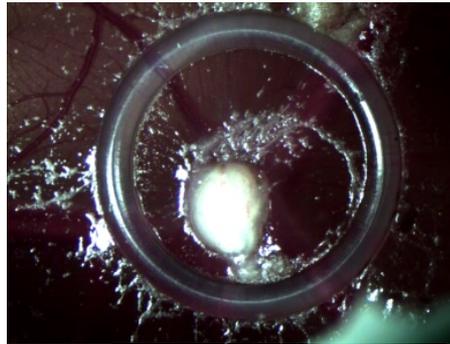
Taxol: Growth = -18%



COV318-Tx T=0



COV318-DMEM T=2



COV318-Tx T=2

Date of experiment 30.09.15

Results: Taxol decreases tumor growth on tumors in vivo

Next steps:
Testing nanoparticles with taxol and antibodies (NP-Tx-Ab) in eggs

Acknowledgements

Laboratory of gynecologic tumor
and development biology –
University of Geneva:

Dr. Marie Cohen

Sonia Meynier
Daniel Bastida Ruiz
Christine Wuillemin

Section des sciences
pharmaceutiques -
University of Geneva:

Dr. Florence Delie

Dr. Brigitte Delavy
Cédric Thauvin



UNIVERSITÉ
DE GENÈVE

Questions?

References

"About Ovarian Cancer." *World Ovarian Cancer Day*. N.p., 2015. Web. 4 Nov. 2015. <<http://ovariancancerday.org/about-ovarian>>.

Delie F, Petignat P, Cohen M. (2012) GRP78 protein expression in ovarian cancer patients and perspectives for a drug-targeting approach. *J Oncol*. 2012;2012:468615

Delie F. et al (2012) Anti-KDEL coated nanoparticles: A promising tumor targeting approach for ovarian cancer? *Biochimie*. 2012;94(11):2391–2397

Nobs, L.B. (2004) Development and evaluation of biodegradable nanoparticles for active targeting of tumor cells