

# XANTEC BIOANALYTICS – YOUR BASIC LINK TO SPECIFICITY > SENSITIVITY > REPRODUCIBILITY >>>>>> VERSATILITY > CONVENIENCE > SAVINGS >>>>>>>>> **RESULTS**

With SPR and diverse surface protein chemistries, scientists have discovered an invaluable tool with which to investigate molecular and cellular reactions in fields including immunology, molecular biology, cell biology and biochemistry, as well as many others. With XanTec bioanalytics, you have the opportunity to achieve greater results – more specificity, more sensitivity, more versatility – and greater savings.

XanTec bioanalytics provides laboratories worldwide with the ultimate in Surface Plasmon Resonance (SPR) biosensor chips via superior coating technologies.

Not only do we feature the largest portfolio of sensorchip coatings and chemistries in the world, we offer the versatility to work on a number of different instruments and in varying formats. XanTec bioanalytics has been providing SPR biosensor chips and innovative surface chemistries for a decade.

## Enhance the quality of your data

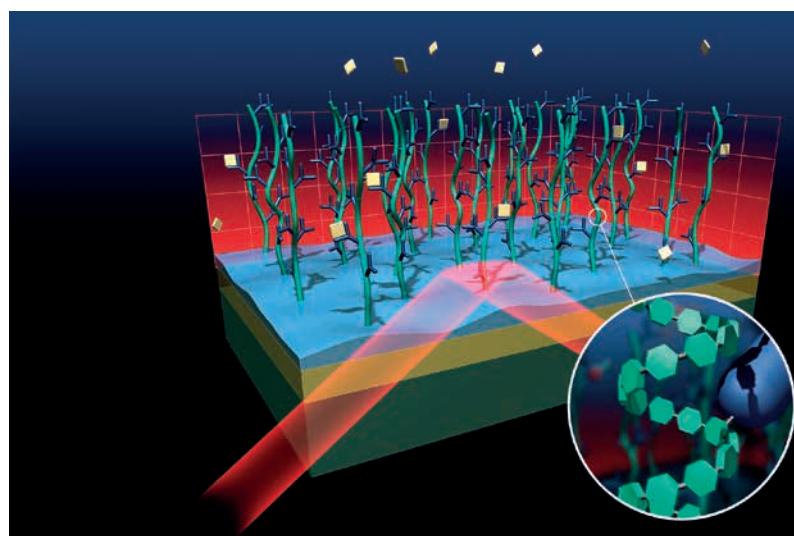
XanTec bioanalytics researchers have spent years developing unique surface technologies and have created nanocoatings that are dense, well-defined and virtually defect-free.

Now, your research benefits by utilizing these superior sensorchips and surfaces provided only by XanTec bioanalytics. Our optimized SPR chips ensure that you obtain what you require – the most accurate data possible.

**XanTec bioanalytics – our dimensions magnify the differences – and your results.**



# XANTEC: NANO DIFFERENCES



## Ultra Sensitivity

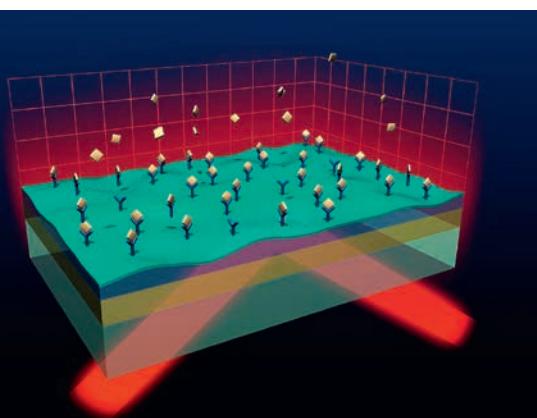
Now, achieve ultrasensitive detection of compounds with MWs below 100 Da or at low concentrations. Our coatings have remarkably low background signal, with a S/N ratio up to one order of magnitude better as compared to other state of the art sensorchips. Low MW compounds can produce signals as high as a few hundred RU on our surfaces, whereas the norm using other sensors is only a few ten RU.

## Amazing Specificity

Our chips offer the lowest degree of non-specific interactions and eliminate blocking steps, use of Tween or other additives. Several of our coatings are virtually 100% bioinert, even in pure serum, and are thus well-suited for biomedical/diagnostic applications or bioprocess monitoring, among many other applications.

## Protocol Transfer

Our protocols can be directly transferred to any application, including to identically coated microarray slides, offering a large advantage in research methodology and the ability to directly compare results obtained from different instruments, as well as via multiple detection techniques.



# — BIG ALTERNATIVE

## High Immobilization Capacity

As an option, chip surfaces coated with extraordinary dense hydrogels are available. These feature thicknesses of more than 500 nm and immobilization capacities of well above 100.000 µRIU (~ 100.000 RU or 10.000 mdeg). Not only do these coatings help yield higher signals, but they also provide great enough sensitivity and capacity to detect low molecular weight analytes as well.

## Physicochemical Stability

The hydrogel matrices tolerate non-oxidative aqueous solutions from pH 1 – 13, as well as all common organic solvents. Temperatures up to 90 °C are unproblematic. Materials may be purchased in advance for a series of experiments and stored for years without fear of degradation. Results will remain consistent over time.

## Tremendous Savings

The chips cost 30 – 60% less than leading competitors' prices! Our technology can help not only improve your results, but also save money as well.

## Ultimate Convenience

Optimizing ligand immobilization protocols and repeating immobilization runs are both expensive and labour intensive. XanTec can provide SPR sensorchips with your individual ligand pre-immobilized to optimized surfaces and sent ready-for-use. The direct result is low chip-to-chip variation within one batch with the added benefits of saved time and reagents.

## Wide Variety of Immobilization Chemistries

You decide upon the best solution for your experimental methods. XanTec offers a wide selection of immobilization chemistries in addition to the usually employed NHS-mediated amide coupled to carboxylated surfaces. You have a choice of functional groups which allow for several alternative covalent and non-covalent methods of ligand immobilization.

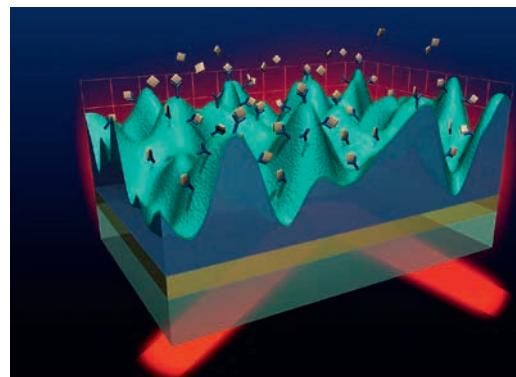
## High Versatility

We additionally offer non-polysaccharide matrices with excellent bioinertness. In contrast to the microbially produced dextran, in which molecules are slightly branched and have a helical superstructure, the polymer chains of these hydrogels are strictly linear and thus better defined. Consequently, a better sensorgram results due to improved diffusion characteristics in kinetic measurements and binding experiments.

### XanTec sensorchips are compatible with:

- Reichert SR7000DC, SR7500DC, Reichert2SPR and Reichert4SPR
- Biacore® 1000 – 4000, 8K, T100, T200, S200, X, X100, J, Q, C
- ESPRIT, TWINGLE, SPRINGLE
- IBIS I, II and MX96
- BioNavis SPR Navi
- Pall ForteBio Pioneer systems
- Bruker / Sierra Sensors SierraTM SPR-32 and others
- Genoptics/Horiba
- Optrel Multiskop

Alternative formats and custom coatings available upon request.



### Selected References:

- Risse, F., Gedig, E.T. and Gutmann, J.S. 2018. Carbodiimide-mediated immobilization of acidic biomolecules on charge-reversed zwitterionic sensor chip surfaces. *Anal. Bioanal. Chem.*, 410: 4109 – 4122.
- Steinicke, F., Oltmann-Norden, I., and Wätzig, H. 2017. Long term kinetic measurements revealing precision and general performance of surface plasmon resonance biosensors. *Anal. Biochem.*, 530: 94–103.
- Gedig, E.T. 2017. Surface Chemistry in SPR Technology. In: *Handbook of Surface Plasmon Resonance*: 60–105. Royal Society of Chemistry.
- Davidoff, S. N., Ditto, N. T., Brooks, A. E., Eckman, J., and Brooks, B. D. 2015. Surface plasmon resonance for therapeutic antibody characterization. In: *Label-Free Biosensor Methods in Drug Discovery*: 35–76. Humana Press, New York, NY.
- Klein, T., Henn, C., De Jong, J.C., Zimmer, C., Kirsch, B., Maurer, C. K., Pistorius, D., Müller, R., Steinbach, A., and Hartmann, R.W. 2012. Identification of Small-Molecule Antagonists of the *Pseudomonas aeruginosa* Transcriptional Regulator PqsR: Biophysically Guided Hit Discovery and Optimization". *ACS Chem. Biol.*, 7 (9): 1496–1501.
- Di Primo, C., Dausse, E. and Toulmé, J.-J.. 2011. Surface Plasmon Resonance Investigation of RNA Aptamer–RNA Ligand Interactions. *Biomedical and LifeSciences Therapeutic Oligonucleotides, Methods in Molecular Biology*, Vol. 764: 279–300.
- Munoz, E. M., Correa, J., Fernandez-Megia, E., Riguera, R. 2009. Probing the Relevance of Lectin Clustering for the Reliable Evaluation of Multivalent Carbohydrate Recognition. *J. Am. Chem. Soc.*, 131(49): 17765–17767.
- Rebe Raz, S., Bremer, M. G. E. G., Haasnoot, W., Norde, W. 2009. Label-Free and Multiplex Detection of Antibiotic Residues in Milk Using Imaging Surface Plasmon Resonance-Based Immunosensor. *Anal. Chem.*, 81(18): 7743–7749.
- Juncker, D., Schmid, H., Delamarche, E. 2005. Multipurpose microfluidic probe. *Nature Mat.*, 4: 622 – 628.
- Syrovets, T., Büchele, B., Gedig, E., Slupsky, J. R., Simmet, T. 2000. Acetyl- Boswellic Acids are novel catalytic inhibitors of Human Topoisomerases I and II. *Mol. Pharmacol.*, 58: 71–81.

Knowing that SPR and related sensorchips are the heart of affinity biosensors has been the driving impetus at XanTec bioanalytics. Our entire philosophy is built upon the realization that a chip's nanoarchitecture and surface chemistry are key to achieving optimal sensitivity and selectivity.

Our proprietary technology solves a number of critical issues usually associated with state of the art surface chemistry. The coatings are robust and prevent exposure of hydrophobic nanodomains or pinhole defects which can cause non-specific interactions. As the chemistry is more versatile, an even larger choice of topcoats is available to specifically address a laboratory's individualized needs.

XanTec bioanalytics provides high quality sensor chips, which also yield the most precise results and sensitive data possible.

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