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DISSERTATION TITLE: *Molecularly Imprinted Polymers as new tool in proteomics: the case study of SCLC diagnosis*

Dette doktorgradsarbeidet har fokuset på utvikling av nye, nøyaktige diagnostiske tester for småcellet lungekreft ved å bruke syntetisk reseptorer (såkalte MIPs) i opparbeidelse av biomarkører fra blodprøver. Fordelen med syntetiske reseptorer er at de kan framstilles raskt og billig, og de kan brukes sammen med sensitive og selektive instrumenter som massespektrometre.

The urgency for cancer diagnosis is one of the main focus of the research community, since the early diagnosis of cancer translates in timely treatment for effective cure. In order to spread a large screening of the population for cancer, new diagnostic tests should be developed with the characteristic of being accurate without requiring high costs, otherwise unsustainable for the management of the public health. This thesis has focused on the development new accurate diagnostic tests for small cell lung cancer which are particularly cost- and time-effective since they are based on artificial receptors (so called MIPs). These MIPs allow to capture and enrich small cell lung cancer specific peptides prior to analysis. Advantage with the MIPs is that they can be obtained by rapid and inexpensive processes and can be used together with sensitive and selective instruments such mass spectrometers. The knowledge acquired within this thesis will give the basis for further research focused in developing new synthetic systems to be applied to the diagnosis of many urgent diseases such as cancer, Parkinson or Alzheimer diseases.