



## **IV Simpozijum srpskog udruženja za proteomiku – SePA**

### **Interaktomika i glikoproteomika: novi pristupi u analizi proteina na velikoj skali**

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**25. maj 2018.  
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**Knjiga abstrakata**

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## „Interaktomika i glikoproteomika: Novi pristupi u analizi proteina na velikoj skali”

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### PROGRAM

14.00 Dr Melita Vidaković i dr Svetlana Dinić: Otvaranje SePA Simpozijuma

14:10 Prof. dr Đuro Josić, Odjel za biotehnologiju, Sveučilište u Rijeci, Hrvatska; Warren Alpert, Medical School, Brown University, Providence, RI, USA  
“Upotreba monolitnih stacionarnih faza za visokoprotocnu pripremu uzoraka u proteomici i glikoproteomici”

14:40 Prof. dr Marija Gavrović Jankulović, Hemijski fakultet, Univerzitet u Beogradu, Srbija  
“Primena biblioteka peptidnih liganada za detekciju nisko zastupljenih alergena u proteinskim ekstraktima hrane”

15:05 Pauza za kafu

15:25 Ivana Prodić, Hemijski fakultet, Univerzitet u Beogradu, Srbija  
“Gastrični digestom celog zrna kikirikija sa aspekta proteomike: karakterizacija digestovanih alergena u realnom matriksu hrane”

15:45 Aleksandra Tomov i Svetlana Jovanović  
“Savremene metode u analizi proteina: western blot i gel fotodokumentacija, kvantitativna i kvalitativna obrada podataka”

16:00 Pauza za ručak

16:30 Ana Medić, Medicinski fakultet, Univerzitet u Beogradu, Institut za hemiju u medicini, Srbija  
“Proteom Pseudomonas aeruginose san ai pri biodegradaciji 2,6-di-terc-butilfenola”

16:40 Prof. dr Tanja Ćirković-Veličković, Hemijski fakultet, Univerzitet u Beogradu, Srbija  
“Omiks u hrani, ishrani i životnoj sredini”

16:50 Dr Nebojša Dovezenski  
„Od imidžinga živih ćelija do kvantitativnog Western blota radi otkrivanja novih lekova”

17:05 Diskusija

17:15 Zatvaranje

17:20 Godišnja skupština SePA

### Ulaz na simpozijum je slobodan

**Naučni odbor:** prof. dr Tanja Ćirković Veličković, prof. dr Tatjana Simić, prof. dr Ivanka Karadžić, prof. dr Marija Gavrović-Jankulović, dr Melita Vidaković, dr Svetlana Dinić, prof. dr Marija Plješa Ercegovac, dr Marko Radulović, prof. dr Ivana Borišev, prof. dr Nevena Đukic, dr Romana Masnikosa

**Organizacioni odbor:** dr Melita Vidaković, dr Mirjana Mihailović, dr Nevena Grdović, dr Aleksandra Uskoković, dr Katarina Smiljanić, dr Svetlana Dinić, Ivana Prodić

## Poster prezentacije / Poster presentations:

### P 1: Major peanut allergen Ara h 1 and Ara h 3 epitope post-translational modifications (PTMs)

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**Objective:** Peanuts are widely used for the preparation of a variety of foods and are also relied on as a protein extender. Peanut allergies affect a large portion of world population causing reactions ranging from mild to severe that can lead to anaphylaxis and even death. Seed storage proteins Ara h 1 and Ara h 3 are known as major peanut allergens. IgE epitopes of these allergens have been characterized, but little is known about how post-translational modifications (PTMs) affect their allergenicity and digestibility. Our aim was to investigate PTMs present on known epitopes of said proteins using bottom-up proteomics methods.

**Material and Methods:** Purified 2S albumins (Ara h 1 and Ara h 3) were analysed by a Top5 nLC-MS/MS method by LTQ Orbitrap XL (Thermo Fischer Scientific, Germany). Spectra were compared to Uniprot derived Peanut protein database, hybridized with the Repository of Adventitious Proteins (cRAP), using Peaks 8.5 software package (BSI, Canada). Epitopes were searched for possible PTMs by matching PEAKS PTM results with mapped positions of epitope sequences (found in the Immune Epitope Database – IEDB [www.iedb.org](http://www.iedb.org)).

**Results:** According to IEDB Ara h 1 contains 327 peptide epitopes, within which we detected 8 likely PTMs. Hydroxylation Pro and pyro-glu from Q were found as most common in Ara h 1 epitopes. Ara h 3 has only 110 epitopes, according to IEDB with 10 likely PTMs. Hydroxylation Pro, dehydration and methylation (KR) were found as most frequent in Ara h 3 epitopes. PTMs could be found in the vicinity of trypsin cleavage sites, which could have an impact on digestibility.

**Conclusions:** Peanut allergen epitopes are indeed carriers of PTMs. These results show promise in revealing a possible role PTMs could have on protein allergenicity and digestibility. Further investigation is necessary in order to fully understand the impact protein modifications could have on their allergenic potential.

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