IV Simpozijum srpskog udruženja za proteomiku – SePA

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

www.facebook.com/SerbianProteomicsAssociation

25. maj 2018.
Beograd, Srbija

Knjiga abstrakata

Institut za biološka istraživanja "Siniša Stanković" (IBISS)
Univerzitet u Beogradu

СРПСКО УДРУЖЕЊЕ ЗА ПРОТЕОМИКУ-SePA

IV simpozijum Srpskog udruženja za proteomiku – SePA

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

25. maj 2018

Biblioteka IBISS-a

PROGRAM

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

14:10 Prof. dr Đuro Josić, Odjel za biotehnoligiju, Sveučilište u Rijeci, Hrvatska; Warren Alpert, Medical School, Brown University, Providence, RI, USA
"Upotreba monolitnih stacionarnih faza za visokoprotočnu 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 biodegradciji 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

I 3: Gastric digestome of whole peanut grains from the aspect of immunoproteomics: Characterization of digested allergens in the real food matrix

Ivana Prodić [1*], Dragana Stanić-Vučinić[2], Danijela Apostolović[3], Jelena Radosavljević [2], Jelena Mihailović[2], Katarina Smiljanić[2], Tanja Ćirković Veličković[2,4,5]

[1]*University of Belgrade – Faculty of Chemistry, Innovation Centre Ltd., Belgrade, Serbia;*

[2]*University of Belgrade – Faculty of Chemistry, Center of Excellence for Molecular Food Sciences & Department of Biochemistry;*

[3] *Department of Medicine Solna, Immunology and Allergy Unit, Karolinska Institute and University Hospital, Stockholm, Sweden;*

[4]*Ghent University Global Campus, Incheon, Korea;* [5]*Faculty of Bioscience Engineering, Ghent University, Ghent, Belgium*

*Corresponding author:

E-mail address: iprodic@chem.bg.ac.rs

Objective: Major peanut allergens, Ara h 2 and Ara h 6, are known to be resistant to pepsin digestion, and they sensitize individual via the gastrointestinal tract. Mikenus et al. published a standardized static digestion method for food, based on physiological conditions emphasizing the impact of food matrices. Immunoreactive proteins (large fragments) and peptides (short digestion resistant peptides SDRPs; <10 kDa), to which the immune system of the gastrointestinal tract is exposed during digestion of peanut proteins, has not been investigated under pure physiological conditions suggested by this protocol.

Matherial and methods: Whole grain of grounded raw peanut was incubated with human α-amylase, and pepsin, mimicking the effects of oral and gastric digestion, in total duration of 2h. Bottom up proteomic approach, immunoblotting with allergen-specific antibodies from peanut-sensitized patients, enzyme-linked immunosorbent inhibition assay and ImmunoCAP tests, were used to identify and characterize peanut digesta.

Results: After 2h of oral/gastric phase we got, intact proteins, large, digestion resistant peptides (DRP) and SDRPs, as well. Ara h 2 and Ara h 6 remained mostly intact, and short DRPs from Ara h 2 and Ara h 6 were more potent in inhibiting IgE binding than Ara h 1 and Ara 3. Ara h 1 and Ara h 3 showed preserved allergenic capacity, as well. Almost all of identified short DRPs from Ara h 1, Ara h 2 and Ara h 3, with preserved allergenic potential, were constituents of continuous epitope sequences found via Immune Epitope Database (www.iedb.org).

Conclusion: Processes of protein extraction from the matrix and their enzymatic digestion occur simultaneously. Oral and gastric phase digestion products of raw peanut are intact proteins, large and short digestion resistant peptides. Under these conditions Ara h 2 and Ara h 6 are expectedly more stable towards digestion than Ara h 1, and especially more than Ara h 3.