VI Simpozijum Srpskog udruženja za proteomiku (SePA)
"Razvoj i primena novih metoda proteomike"

Rektorat Univerziteta u Kragujevcu
2. jun 2023. godine

Book of abstracts

VI Simpozijum Srpskog udruženja za proteomiku:
"Razvoj i primena novih metoda proteomike"

VI Symposium of a Serbian proteomic society: „Discussion and Application of New Methods of Proteomics"

Zbornik apstrakata / Book of abstracts

Izdavač / Publisher: Prirodno-matematički fakultet, Univerzitet u Kragujevcu / Faculty of Science, University of Kragujevac

Urednici / Editors: Ivana Prodić, Katarina Smiljanić, Nevena Đukić

Srpsko udruženje za proteomiku (SePA)
Prirodno-matematički fakultet, Univerzitet u Kragujevcu

Jun, 2023.

ISBN: 978-86-6009-097-5

štampa: PMF Kragujevac, tiraž: 20

Electrophoretic assessment of recombinant λ-exonuclease production in different *E. coli* strains

Marija Stefanović[1], Aleksa Savić[2], Nataša Božić[3], Zoran Vujčić[1], Jelena Radosavljević[4*]

[1]*Department of Biochemistry, University of Belgrade – Faculty of Chemistry, Belgrade; Serbia*
[2]*Innovative Centre of the Faculty of Chemistry, Belgrade; Serbia*
[3]*Department of Chemistry, University of Belgrade – Institute of Chemistry, Technology and Metallurgy – National Institute of the Republic of Serbia, Belgrade; Serbia*
[4]*Department of Biochemistry and Centre of Excellence for Molecular Food Sciences, University of Belgrade – Faculty of Chemistry, Belgrade; Serbia*

[*]*e-mail: radosavljevic@chem.bg.ac.rs*

Viral exonucleases play role in many processes essential for genome maintenance, including DNA repair and recombination. Lambda exonuclease (λ -exo), isolated from lambda bacteriophage, hydrolases double-stranded DNA (dsDNA) in the highly processive manner in 5'→3' direction, yielding mononucleotides and single -stranded DNA (ssDNA). This unique enzymatic properties offer several promising biotechnological applications, such as highly sensitive quantification of DNA modifications and single -molecule sequencing. Hence, optimization of the expression conditions is a prerequisite to achieve high-level production of λ-exo. Here we have tested λ -exo expression in five different *E. coli* strains under various temperature regimes in order to establish the optimal conditions for efficient production of recombinant λ-exo. The N-terminally His -tagged λ-exo was successfully expressed in *E.coli* BL21(AI), SHuffle T7, C41(DE3) and C43(DE3) strains in LB broth. Collected aliquots were analysed by SDS-PAGE, followed by CBB staining. Relative yield of target protein bands was determined by densitometry in total cell lysate, as well as in soluble and insoluble cytoplasmatic fractions. We identified *E.coli* BL21(AI), SHuffle T7 and C41(DE3) as good producers of recombinant λ-exo, and upon scaling up, λ -exo was purified from crude cell lysates by metal affinity chromatography in satisfactory yield. Our data suggest that densitometric analysis could serve as a powerful low-cost screening platform for improving recombinant protein expression strategies.

Acknowledgements

This work was supported by the Ministry of Science, Technological Development and Innovation Contract Numbers: 451-03-47/2023-01/200168, 451-03-47/2023-01/200026 and 451-03-47/2023-01/200288.

CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

577.1(048)(0.034.2)

СИМПОЗИЈУМ Српског удружења за протеомику "Развој и примена нових метода протеомике" (6 ; 2023 ; Крагујевац)
Book of abstracts [Електронски извор] = [Zbornik apstrakata] / VI Simpozijum Srpskog udruženja za proteomiku (SePA) “Razvoj i primena novih metoda proteomike”, 2. jun 2023. godine, Kragujevac ; [urednici, editors: Ivana Prodić, Katarina Smiljanić, Nevena Đukić]. - Kragujevac : Univerzitet, Prirodno-matematički fakultet = University, Faculty of Science, 2023 (Kragujevac : PMF). - 1 elektronski optički disk (CD-ROM) ; 12 cm

Sistemski zahtevi: Nisu navedeni. - Nasl. sa naslovne strane dokumenta. - Tiraž 20. - Bibliografija uz pojedine apstrakte.

ISBN 978-86-6009-097-5

а) Биохемија -- Апстракти

COBISS.SR-ID 121787401
