

## Fișa de evaluare privind standardele minimale pe domeniul FIZICĂ

CS II dr. habil. Alina ASANDEI

**COMISIA DE FIZICĂ** - STANDARDE MINIMALE NECESARE ȘI OBLIGATORII PENTRU CONFERIREA TITLURILOR DIDACTICE DIN ÎNVĂȚĂMÂNTUL SUPERIOR ȘI A GRADELOR PROFESIONALE DE CERCETARE-DEZVOLTARE (ORDIN nr. 6129 din 20 decembrie 2016)

## 1. Activitatea didactică și profesională

Nr. Crt.	Tipul activităților	Indicatori
1	Cărți în edituri internaționale recunoscute Web of Science în calitate de autor	$A_1 = \sum_i 4/n_i^{ef}$
2	Capitole de cărți în edituri internaționale recunoscute Web of Science în calitate de autor/ <b>Review-uri în reviste cotate ISI</b>	$A_2 = \sum_i 1/n_i^{ef}$ <b>0.38</b>
3	Cărți în edituri internaționale recunoscute Web of Science în calitate de editor	$A_3 = \sum_i 0.5/n_i^{ef}$
4	<b>Cărți, manuale</b> , îndrumare de laborator în edituri naționale sau alte edituri internaționale ca autor, note interne, prezentări susținute pentru aprobarea analizelor de date în cadrul colaborărilor mari	$A_4 = \sum_i 0.5/n_i^{ef}$ <b>0.5</b>
5	Capitole de cărți în edituri naționale sau alte edituri internaționale ca autor	$A_5 = \sum_i 0.2/n_i^{ef}$
6	Lucrări în extenso (cel puțin 3 pagini) publicate în Proceedings-uri indexate ISI	$A_6 = \sum_i 0.2/n_i^{ef}$
7.	Brevete de invenție internaționale acordate	$A_7 = \sum_i 3/n_i^{ef}$
8	Brevete de invenție naționale acordate	$A_8 = \sum_i 0.5/n_i^{ef}$
9	Director/responsabil/coordonator pentru programe de studii, programe de formare continuă, proiecte educaționale și proiecte de infrastructură (proiectele de cercetare se exclud)	$A_9 = \sum_i 0.5$
10.	Director/ <b>responsabil</b> pentru proiecte de cercetare în valoare $V_i$ euro câștigate prin competiție națională sau internațională (proiectele de la punctul 9 se exclud). Sumele în lei sau în alte valute se convertesc în euro la cursul mediu din anul respectiv conform www.bnr.ro pentru perioada de după 1999 și la cursul din 1999 pentru perioada anterioară. Responsabilii de proiect sunt cei care conduc o echipă de cercetare, fiind menționați ca atare în proiectul depus; în cazul lor se consideră doar suma aferentă echipei conduse.	$A_{10} = \sum_i V_i/100.000$ <b>1.23</b>

$$A = 2.11$$

Criterii minimale pentru activitatea didactică și profesională: CS I, profesor universitar abilitare:

$$A = \sum_{i=1}^{10} A_i \geq 2$$

**2. Activitatea de cercetare**

Nr. crt.	Tipul activităților	Indicatori
1	Articole științifice originale in extenso ca autor	$I = \sum_i AIS_i / n_i^{ef}$ <b>I = 8.583</b>
2	Articole științifice originale in extenso ca prim autor sau autor corespondent, conform mențiunilor de pe articol. Nu se iau în considerare articolele la care autorii sunt indicați în ordinea alfabetică a numelui și candidatul este prim-autor exclusiv datorită numelui acestuia și ordonării alfabetice. În cazul publicațiilor HEPP (High Energy Partide Physics) cu număr mare de autori, dacă articolul are la bază o notă internă a cărei aprobare în vederea trimerii la publicare a fost susținută de către autor, atunci autorul este considerat prim autor.	$P = \sum_i AIS_i$ <b>P = 27.634</b>

Criterii minimale pentru activitatea de cercetare: CS I, profesor universitar, abilitare:

$$I \geq 4, P \geq 4$$

**3. Recunoașterea impactului activității**

Nr. crt.	Tipul activităților	Indicatori
1	Citări în reviste științifice cu factor de impact care se regăsesc în InCites Journal Citation Reports sau în cărți în edituri recunoscute Web of Science. Nu se iau în considerare citările provenind din articole care au ca autor sau coautor candidatul	$C = \sum_i c_i / n_i^{ef}$ unde $c_i$ reprezintă numărul de citări în reviste ISI ale publicației i. <b>C = 137.49</b>
2	Indicele Hirsch	<b>h = 18</b>

Criterii minimale pentru recunoașterea impactului activității: CS I, profesor universitar, abilitare: **C ≥ 40, h ≥ 10**

**Punctajul total CNATDCU:  $T = A + P/2 + I/2 + C/20 + h/5$**

CS I, profesor universitar, abilitare: **T ≥ 12**

**Punctajul total realizat:  $T = 2.11 + 27.634/2 + 8.583/2 + 137.49/20 + 18/5 = 30.693$**

$$T = 2.11 + 13.817 + 4.2915 + 6.8745 + 3.6 = 30.693$$

**Justificare punctaj**

	A(Y)	B(Y)	C(X)	D(Y)	E(Y)	F(Y)	G(Y)	H(Y)	I(Y)	J(Y)
Long Nam	first auth		jurnal	AS	N	N ef	nr. c	C	I	AS-P
Units	(* contributed equally)			all		N+5)/Z N=5	H=18WebS	cNef	ASall/Nef	first*/eq nr
Comments										
F(x)=								Col(G)/Col(F)	Col(D)/Col(F)	
1	Mereuta, L.; Asandei, A. (...); Luchian, T	2023	NANOSCALE	1.258	6	5.5	0	0	0.22873	
2	Mereuta, L.; Asandei, A. (...); Luchian, T	2023	ACS App. Mat. and Int.	1.66	6	5.5	1	0.18182	0.30182	
3	Bucataru, IC; Dragomir, I;	2022	BIOSSENSORS-BASEL	0.876	8	6.5	1	0.15385	0.13477	--
4	Mereuta, L.; *Asandei, A;	2022	ANALYTICAL CHEMISTRY	1.297	6	5.5	3	0.54545	0.23582	0.6485
5	Asandei, A; Mereuta, L	2022	CHEMISTRY-ASIAN JOURNAL	0.746	5	5	1	0.2	0.1492	0.746
6	Asandei, Mereuta	2021	Proteomics	1.063	5	5	2	0.4	0.2126	1.063
7	Luchian, Mereuta, Park	2021	Proteomics	--	5	5	3	0.6	--	--
8	Dragomir, IS; *Asandei, A;	2021	Polymers,	0.611	6	5.5	2	0.36364	0.11109	0.3055
9	Schiopu, I	2021	STUDIA UNIV. B-B CHEMIA	0.051	6	5.5	0	0	0.00927	--
10	Asandei, A, Mereuta, L	2020	ACS App. Mat. and Int.	1.697	7	6	16	2.66667	0.28283	1.697
11	Mereuta, L; *Asandei, A;	2020	Scientific Reports,	1.285	8	6.5	17	2.61538	0.19769	0.6425
12	Ko, SJ	2020	Scientific Reports,	1.285	8	6.5	31	4.76923	0.19769	--
13	Asandei, A	2020	Small Methods	3.152	7	6	42	7	0.52533	3.152
14	Mereuta, L; *Asandei, A	2019	Analytical Chemistry	1.411	5	5	13	2.6	0.2822	0.7055
15	Asandei, A, Mereuta	2019	ACS Sensors	1.658	6	5.5	7	1.27273	0.30145	1.658
16	Luchian, T.	2019	Acc. of Chem. Re.	--	6	5.5	27	4.90909	--	--
17	Asandei, A; Dragomir, IS	2018	Polymers	0.7	6	5.5	9	1.63636	0.12727	0.7
18	Ciucu, A* Asandei, A	2018	Analytical Chemistry	1.348	8	6.5	13	2	0.20738	0.674
19	Asandei, A; Schiopu, I	2018	J OF MEMBRANE BIOLOGY	0.456	5	5	1	0.2	0.0912	0.456
20	Asandei, A; Rossini, AE	2017	Langmuir	0.964	5	5	51	10.2	0.1928	0.964
21	Asandei, A; Ciucu, A;	2017	Scientific Reports	1.356	8	6.5	10	1.53846	0.20862	1.356
22	Asandei, A; Schiopu, I;	2016	ACS App. Mat. and Int.	1.634	6	5.5	95	17.27273	0.29709	1.634
23	Asandei, A; Chinappi, M;	2015	ACS App. Mat. and Int.	1.5	7	6	30	5	0.25	1.5
24	Asandei, A; Chinappi, M	2015	Scientific Reports	1.9	7	6	44	7.33333	0.31667	1.9
25	Mereuta, L; *Asandei, A;	2014	ACS App. Mat. and Int.	1.373	5	5	25	5	0.2746	0.6865
26	Mereuta, L.	2014	Scientific Reports,	2.075	7	6	82	13.66667	0.34583	--
27	Asandei, A; Ifteimi, S;	2014	J. of Membrane Biology,	0.726	5	5	16	3.2	0.1452	0.726
28	Asandei, A; Schiopu, I;	2013	Langmuir,	1.111	5	5	27	5.4	0.2222	1.111
29	Mereuta, L.	2012	Langmuir,	1.177	6	5.5	25	4.54545	0.214	--
30	Campos, E; Asandei, A;	2012	Langmuir,	1.177	8	6.5	15	2.30769	0.18108	0.5885
31	Mereuta, L.	2011	PLoS ONE	1.798	3	3	14	4.66667	0.59933	--
32	Asandei, A, Mereuta, L.	2011	J. of Physical Chemistry B	1.161	3	3	9	3	0.387	1.161
33	Asandei, A; Apetrei, A	2011	J MOLEC RECOGNITION	0.892	3	3	11	3.66667	0.29733	0.892
34	Asandei, A; Apetrei, A;	2011	Langmuir	1.248	5	5	12	2.4	0.2496	1.248
35	Apetrei, A;	2010	J Bioener Biomembranes	1.232	6	5.5	23	4.18182	0.224	--
36	Asandei, A, Mereuta, L	2008	Biophysical Chemistry	0.765	3	3	12	4	0.255	0.765
37	Asandei, A	2008	COL SURF B-BIOINTERFACES	0.654	2	2	16	8	0.327	0.654
38										
39										

C = 137.49 I = 8.583 P = 27.634

## 1. Activitatea didactică și profesională: **A = 2.11**

### 1.2 Review-uri în reviste cotate ISI

- Single-molecule, hybridization-based strategies for short nucleic acids detection and recognition with nanopores Luchian, T; Mereuta, L; Park, Y; **Asandei, A**; Schiopu, I. **PROTEOMICS** 22 (5-6), e2100046, 2021

5 autori:

0.2

Search > Results for ASANDEI ALINA (...) > Results for ASANDEI ALINA (...) > Single-molecule, hybridization-based strategies for short nucleic acids dete...

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Single-molecule, hybridization-based strategies for short nucleic acids detection and recognition with nanopores

By: Luchian, T (Luchian, Tudor) [1]; Mereuta, L (Mereuta, Loredana) [1]; Park, Y (Park, Yoonkyung) [2]; [3]; Asandei, A (Asandei, Alina) [4]; Schiopu, I (Schiopu, Irina) [4]

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**PROTEOMICS**

Volume: 22 Issue: 5-6 Special Issue: SI  
Article Number: e2100046  
DOI: 10.1002/pmic.202100046  
Published: MAR 2022  
Early Access: AUG 2021  
Indexed: 2021-08-08  
Document Type: Review

**Abstract**

DNA nanotechnology has seen large developments over the last 30 years through the combination of detection and discovery of DNAs, and solid phase synthesis to increase the chemical functionalities on nucleic acids, leading to the emergence of novel and sophisticated in features, nucleic acids-based biopolymers. Arguably, nanopores developed for fast and direct detection of a large variety of molecules, are part of a revolutionary technological evolution which led to cheaper, smaller and considerably easier to use devices enabling DNA detection and sequencing at the single-molecule level. Through their versatility, the nanopore-based tools proved useful in biomedicine, nanoscale chemistry, biology and physics, as well as other disciplines spanning materials science to ecology and anthropology. This mini-review discusses the progress of nanopore- and hybridization-based DNA detection, and explores a range of state-of-the-art applications afforded through the combination of certain synthetically-derived polymers mimicking nucleic acids and nanopores, for the single-molecule biophysics on short DNA structures.

**Keywords**

**Author Keywords:** hybridization; nanopore; peptidenucleic acids; single stranded DNA; unzipping

**Keywords Plus:** SEQUENCE-SPECIFIC DETECTION; INDIVIDUAL DNA STRANDS; LABEL-FREE DETECTION; ALPHA-HEMOLYSIN; FORCE SPECTROSCOPY; GOLD NANOPARTICLES; DUPLEX FORMATION; PNA; DISCRIMINATION; KINETICS

**Author Information**

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Alexandru I Cuza Univ, Dept Phys, Iasi 700506, Romania

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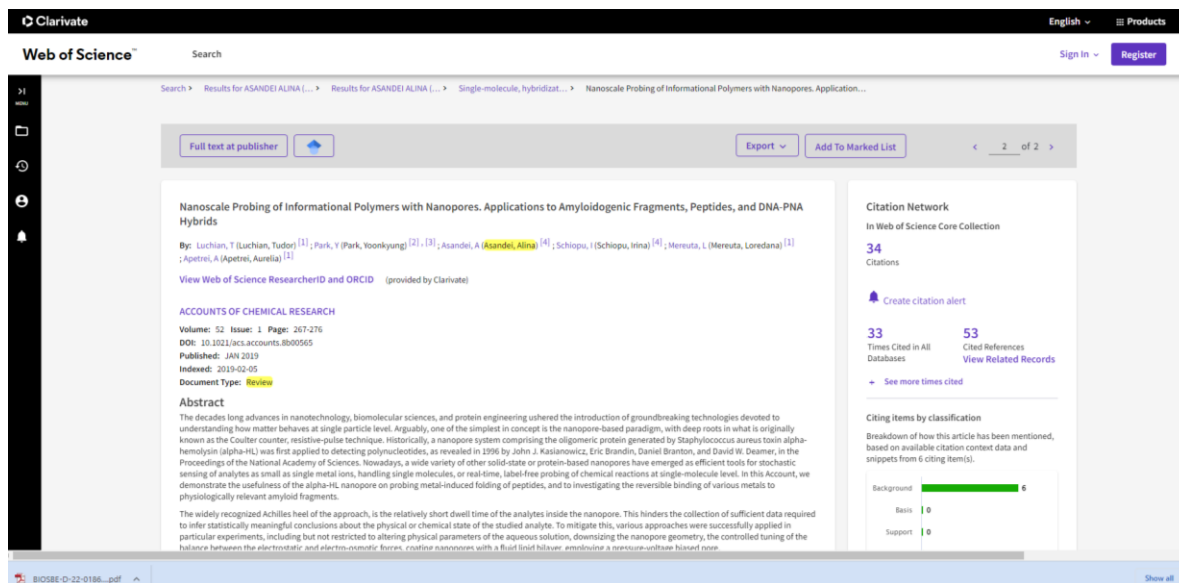
Differ 0

Discuss 0

- **Nanoscale Probing of Informational Polymers with Nanopores. Applications to Amyloidogenic Fragments, Peptides, and DNA-PNA Hybrids.** Luchian, T; Park, Y; **Asandei, A**; Schiopu, I; Mereuta, L; Apetrei, A. **ACCOUNTS OF CHEMICAL RESEARCH** 52 (1), 267-276, 2019.

6 autori, nef=5.5

0.18



A<sub>2</sub> = 0.38

#### 1.4. Cărți, manuale în edituri naționale ca autor:

- **Alina ASANDEI**, 'Fenomene de transport în biofizica moleculară' 2018, Editura Universității „Alexandru Ioan Cuza”- Iasi, 164 pagini

A<sub>4</sub> = 0.5

**1.10. Director/responsabil pentru proiecte de cercetare în valoare V<sub>i</sub> euro câștigate prin competiție națională sau internațională (proiectele de la punctul 9 se exclud). Sumele în lei sau în alte valute se convertesc în euro la cursul mediu din anul respectiv conform www.bnr.ro pentru perioada de după 1999 și la cursul din 1999 pentru perioada anterioară.**

- **Responsabil proiect Partener P1 (1.01.2016-31.12.2016) contract nr. 98/2012 PN II PCCA1 Tehnica imunochimica de analiza in faza omogena bazata pe nanoparticule functionalizate. Aplicatie pentru detectia contaminantului pesticidic acid 2,4-diclorofenoxiacetic din probe alimentare si de mediu (HINANODET) 2012-2015 (prelungire 2015-2016)/ 2.000.000 ron pe proiect/300.000 ron P1 -UAIC =68.000 euro. Gestionati ca Responsabil de proiect: 23.000 euro**

0.23

- **Director proiect (2018-2020) contract nr. 45 / 02.05.2018 PN-III-P1-1.1-TE-2016-0508 Identificarea unimoleculară a domeniilor aminoacidice din structura primară a polipeptidelor folosind nanopori proteici// Nanopore-based, pattern recognition on the primary structure of polypeptides at uni-molecular level, (PEPREC) 450.000ron ~100.000euro**

1

A<sub>10</sub> = 1.23

## **2. Activitatea de cercetare (I și P) și 3. Recunoașterea impactului activității (C)**

**P = 27.634**

**I= 8.583**

**C= 137.49**

**Lista articolelor științifice (în ordinea în care sunt afișate în tabelul de mai sus) și citările corespunzătoare:**

1. Mereuta, L; **Asandei, A**; Andricioaei, I; Park, J; Park, Y; Luchian, T. Considerable slowdown of short DNA fragment translocation across a protein nanopore using pH-induced generation of enthalpic traps inside the permeation pathway, **NANOSCALE** **2023**, 15, 14754-14763.
2. Mereuta, L; **Asandei, A**; Schiopu, I; Park, J; Park, Y; Luchian, T. Synthetic Receptor Based on a Peptide Antibiotic-Functionalized Chimera for Hybridization-Based Polynucleotide Detection, **ACS APPLIED MATERIALS & INTERFACES** **2023**, 15, 33159-33168

**Citări:**

1. A Comparable Study of Single Stranded DNA Sensing Using Track-Etched Nanopore Sensors By: Kececi, K (Kececi, Kaan) **CHEMISTRYSELECT**, 2023, 8 Issue 37
3. Bucataru, IC; Dragomir, I; **Asandei, A**; Pantazica, AM; Branza-Nichita, N; Park, Y; Luchian, T. Probing the Hepatitis B Virus E-Antigen with a Nanopore Sensor Based on Collisional Events Analysis, **BIOSENSORS-BASEL** **2022**, 12, 596.

**Citări:**

1. Proactive Manipulation Techniques for Protein Transport at Confined Nanoscale Ma, CF (Ma Chaofan); Xu, W (Xu Wei); Liu, W (Liu Wei); Xu, CH (Xu Changhui); Sha, JJ **ACTA CHIMICA SINICA**, 2023, 81 (7), 857-868
4. Mereuta, L#; **Asandei, A#**; Dragomir, I; Park, J; Park, Y; Luchian, T. A Nanopore Sensor for Multiplexed Detection of Short Polynucleotides Based on Length-Variable, Poly-Arginine-Conjugated Peptide Nucleic Acids, **Analytical Chemistry**, **2022**, 94, 8774-8782.

**Citări:**

1. Applications of vesicle-based artificial cells in analytical chemistry: A review By Wang, LA; Zeng, XM; Shen, W; Tang, S; Lee, HK **TRAC-TRENDS IN ANALYTICAL CHEMISTRY**, 2023, 168, 117343
2. A Comparable Study of Single Stranded DNA Sensing Using Track-Etched Nanopore Sensors By: Kececi, K **CHEMISTRYSELECT**, 2023, 8 Issue 37
3. Nanopore single-molecule analysis of biomarkers: Providing possible clues to disease diagnosis By Chen, XH; Zhou, S; Wang, YJ; Zheng, L; Guan, S; Wang, DQ; Wang, L; Guan, XY **TRAC-TRENDS IN ANALYTICAL CHEMISTRY**, 2023, 162, 117060
5. **Asandei, A**; Mereuta, L; Bucataru, IC; Park, Y; Luchian, T. A Single-Molecule Insight into the Ionic Strength-dependent, Cationic Peptide Nucleic Acids-Oligonucleotides Interactions, **CHEMISTRY-AN ASIAN JOURNAL**, **2022**, 17, e202200261.

**Citări:**

1. Observing Confined Local Oxygen-induced Reversible Thiol/Disulfide Cycle with a Protein Nanopore Liu, W; Yang, CN; Yang, ZL; Yu, RJ; Long, YT; Ying, YL **ANGEWANDTE CHEMIE-INTERNATIONAL EDITION**, 2023, DOI10.1002/anie.202304023
6. **Asandei A.**, Mereuta L., Schiopu I., Park Y., Luchian T. Teaching an old dog new tricks: a lipid membrane-based electric immunosensor for real-time probing of the spike S1 protein subunit from SARS-CoV-2, **Proteomics** **2021**, e2100047.

#### Citări:

1. Label-free high-precise nanopore detection of endopeptidase activity of anthrax lethal factor regulated by diverse conditions By Li, MH; Chen, SC ; Wang, YJ; Zhang, SX.; Song, DD; Tian, R; Geng, J; Wang, L BIOSENSORS & BIOELECTRONICS 20023, 219, 114800
2. Highlights on the current state of proteomic detection and characterization with nanopore sensors: Robertson, JWF; Reiner, JE PROTEOMICS, 2022, 22, ,5-6, SI, 2100061.

7. Luchian, T.; Mereuta, L.; Park, Y.; **Asandei, A.**; Schiopu, I. Single-molecule, hybridization-based strategies for short nucleic acids detection and recognition with nanopores, **Proteomics** **2021**, e2100046. (fara a fi luat in calcularea lui I)

#### Citări:

1. A Comparable Study of Single Stranded DNA Sensing Using Track-Etched Nanopore Sensors By: Kececi, K CHEMISTRYSELECT, 2023, 8 Issue 37
2. Single-molecule analysis of DNA structures using nanopore sensors By:Li, FY; Luo, YH; Xi, GH; Fu, JY; Tu, J CHINESE JOURNAL OF ANALYTICAL CHEMISTRY, 2022, 50, 5, 100089.
- 3.. Highlights on the current state of proteomic detection and characterization with nanopore sensors By: Robertson, JWF; Reiner, JE PROTEOMICS, 2022, 22, ,5-6, SI, 2100061

8. Dragomir, I.S#., **Asandei, A#.**, Schiopu, I, Bucataru, I.C., Mereuta, L., Luchian, T. The Nanopore-Tweezing-Based, Targeted Detection of Nucleobases on Short Functionalized Peptide Nucleic Acid Sequences, **Polymers** **2021**, 13 (8), 1210.

#### Citări:

1. Nanopore Deciphering Single Digital Polymers Towards High-Density Data Storage By Hu, ZL; Liu, YH; Xin, KL; Yu, RJ; Zhang, LM; Ying, YL CHEMISTRY-A EUROPEAN JOURNAL 2023, DOI10.1002/chem.202203919
2. Artificial genetic polymers against human pathologies Ivanov, GS; Tribulovich, VG; Pestov, NB; David, TI (David, Temitope I. I.); Amoah, AS (Amoah, Abdul-Saleem); Korneenko, TV (Korneenko, Tatyana V. V.); Barlev, NA BIOLOGY DIRECT 2023, 17, 39

9. Schiopu Irina, **Asandei Alina**, Mereuta Loredana, Dragomir Isabela, Bucataru Ioana Cezara, Luchian Tudor. Single-molecule detection and manipulation with biological nanopores. Studia Universitatis Babes-Bolyai, Chemia . 2021, 66 161-174.
10. **Asandei, A.**; Mereuta, L.; Schiopu, I.; Park, J.; Seo, C-H.; Park, Y.; Luchian, T. Non-Receptor-Mediated Lipid Membrane Permeabilization by the SARS-CoV-2 Spike Protein S1 Subunit, **ACS APPLIED MATERIALS & INTERFACES** **2020**, 12(50), 55649-55658.

#### Citări:

1. Strategies for the Management of Spike Protein-Related Pathology Halma, MTJ; Plothe, C; Marik, P; Lawrie, TA MICROORGANISMS 2023, 11 1308
2. Nanopore single-molecule analysis of biomarkers: Providing possible clues to disease diagnosis Chen, XH ; Zhou, S; Wang, YJ; Zheng, L; Guan, S; Wang, DQ; Wang, L; Guan, XY TRAC-TRENDS IN ANALYTICAL CHEMISTRY, 2023, 162, 117060
3. SARS-CoV-2 Omicron Subvariants Balance Host Cell Membrane, Receptor, and Antibody Docking via an Overlapping Target Site By Overduin, M; Bhat, RK; Kervin, TA VIRUSES-BASEL 2023, 15, 447
4. Immune Response and Molecular Mechanisms of Cardiovascular Adverse Effects of Spike Proteins from SARS-CoV-2 and mRNA Vaccines By Bellavite, P; Ferraresi, A; Isidoro, C BIOMEDICINES 2023, 11, 451
5. Label-Free Analysis of Binding and Inhibition of SARS-Cov-19 Spike Proteins to ACE2 Receptor with ACE2-Derived Peptides by Surface Plasmon Resonance By Abouhajar, F; Chaudhuri, R; Valiulis, SN; Stuart, DD; Malinick, AS; Xue, M; Cheng, Q ACS APPLIED BIO MATERIALS 2023, 6, 182-190
6. Progressive membrane-binding mechanism of SARS-CoV-2 variant spike proteins Overduin, M; Kervin, TA; Tran, A ISCIENCE 2022, 25, 8, 104722

7. HSP90 Inhibitors Modulate SARS-CoV-2 Spike Protein Subunit 1-Induced Human Pulmonary Microvascular Endothelial Activation and Barrier Dysfunction Biancatelli, RMLC; Solopov, P; Gregory, B; Khodour, Y; Catravas, JD, FRONTIERS IN PHYSIOLOGY 2022, 13, 812199.
8. Multifaceted membrane binding head of the SARS-CoV-2 spike protein Tran, A; Kervin, TA; Overduin, M CURRENT RESEARCH IN STRUCTURAL BIOLOGY, 2022, 4,146-157
9. The Inhibition of SARS-CoV-2 3CL M-pro by Graphene and Its Derivatives from Molecular Dynamics Simulations Wang, JW, Yu, Y, Leng, TL, Li, YY, Lee, ST 2021 ACS APPLIED MATERIALS & INTERFACES
10. Millisecond dynamic of SARS-CoV-2 spike and its interaction with ACE2 receptor and small extracellular vesicles: Lim, K, Nishide, G, Yoshida, T, Watanabe-Nakayama, T, Kobayashi, A, Hazawa, M, Hanayama, R, Ando, T, Wong, RW 2021 JOURNAL OF EXTRACELLULAR VESICLES 10 (14)
11. SAS: A Platform of Spike Antigenicity for SARS-CoV-2, By: Zhang, L, Cao, RF, Mao, TT, Wang, Y, Lv, DQ, Yang, LF, Tang, YY, Zhou, MD, Ling, YC, Zhang, GQ, Qiu, TY, Cao, ZW, 2021 FRONTIERS IN CELL AND DEVELOPMENTAL BIOLOGY 9
12. The SARS-CoV-2 spike protein subunit S1 induces COVID-19-like acute lung injury in K18-hACE2 transgenic mice and barrier dysfunction in human endothelial cells Biancatelli, RMLC; Solopov, PA; Sharlow, ER; Lazo, JS; Marik, PE; Catravas, JD 2021 | AMERICAN JOURNAL OF PHYSIOLOGY-LUNG CELLULAR AND MOLECULAR PHYSIOLOGY 321 (2) ,L477-L484
13. A Fungal Defensin Targets the SARS-CoV-2 Spike Receptor-Binding Domain/Gao, B and Zhu, SY 2021 JOURNAL OF FUNGI 7 (7)
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