

Dr. BALAKUMAR CHANDRASEKARAN

(B. Pharm., M. Pharm., PhD., PostDoc)

Professor-Faculty of Pharmacy, Philadelphia University, P.O. Box 1, Amman 19392, Jordan

E-mail ID: dhillbalu@gmail.com; balakumar@philadelphia.edu.jo

ORCID: <https://orcid.org/0000-0003-4198-8679>

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=36614134400>

Google Scholar: <https://scholar.google.com/citations?hl=en&user=2f7FaFEAAAAJ>

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Associate Editor: Frontiers in Pharmacology, Pharmacology of Anti-Cancer drugs (Frontiers, Impact Factor: 5.988)

Associate Editor: Frontiers in Oncology, Pharmacology of Anti-Cancer drugs (Frontiers, Impact Factor: 5.738)

Review Editor: Frontiers in Pharmacology, Pharmacology of Anti-Cancer drugs (Frontiers, Impact Factor: 5.988)

Associate Editor: Frontiers in Molecular Biosciences: Molecular Diagnostics and Therapeutics (Frontiers, Impact Factor: 6.113).

Associate Guest Editor: Molecules-MDPI

Career Summary

- Pharmacy education: **B. Pharmacy, M. Pharmacy, PhD, and PostDoctoral Research.**
- Good research accomplishment with **70** paper publications, **06** patents, **18** book chapters, editorial books (**03**) and editorial journals (**05**).
- **Design** of novel biologically active organic molecules by *in silico* **CADD** technology.
- Expertise in the **synthesis** of new chemical entity (**NCE**) and instrumental methods of analysis of active pharmaceutical ingredients (**APIs**), drug intermediates, and impurities.
- Pharmacological evaluation of the synthesized compounds by *in vitro* and *in vivo* animal models.
- Industrial Projects: **Pharmaceutical Analysis-Karpagam Pharma LLP**, Coimbatore, India
- Hospital Pharmacist: Dispensing of the prescribed medicines and patient counselling.
- **Administrative skills:** Dean, HOD of Pharmaceutical Chemistry, HOD of Organic Chemistry, Administrative committees, Documentation for accreditation of course programs, and students' engagements.
- Recipient of research funding and successfully completed many research projects and assignments, individually and as part of a research group.
- **Editorial Services and Reviewer:** Elsevier, Wiley, MDPI, Springer, and Frontiers Publishers.

Areas of Research

- ✓ Computer-aided drug design (CADD) of pharmacologically active small molecules.
- ✓ Design and development of novel medicinal compounds as anticancer, antimicrobial, antitubercular, wound-healing agents, and anti-asthmatics.
- ✓ Synthesis of medicinal compounds by green chemistry techniques, analysis, characterization, and evaluation.
- ✓ Impurity profiling for medicinal/pharmaceutical substances, analytical method development and validation for bulk drugs and formulations.
- ✓ Green biosynthesis of metal nanoparticles from the natural extracts and natural phytoconstituents and their characterization with pharmacological evaluation.

Key Skills

- Computer-aided drug design (**CADD**)
 - Docking:* Glide (Schrodinger), GOLD (CCDC), CDOCKER (BIOVIA-Discovery Studio)
 - Molecular Dynamics:* AMBER
 - Homology Modeling:* Modeler9v6, Prime-Schrodinger)
 - Pharmacophore modeling:* PHASE (Schrodinger) and HipHop (BIOVIA-DS).
 - 3D-QSAR:* Cerius2 version 4.10 (3D-QSAR: MSA and MFA)
- Designing and executing synthetic schemes for the innovative multistep organic synthesis including green chemistry (one-pot solvent-free / microwave-assisted) methods.
- Developing methods for purification of organic compounds using flash column chromatography (Combi Flash® NextGen 300+) and conventional column techniques.
- Instrumental methods of pharmaceutical analysis
 - ❖ FT-IR: Bruker Alpha FT-IR spectrometer
 - ❖ NMR: Bruker AVANCE III 400 MHz (Topspin software)
 - ❖ LC-MS: Bruker ESI-QTOF mass spectrometer
 - ❖ HPLC: Waters HPLC system (Empower™ 3 software)
 - ❖ HPTLC: CAMAG Linomat5 (Semi-automatic; WinCATS software)
- Synthetic organic chemistry
 - CEM Discover - Microwave Organic Synthesizer; Buchi Rotary evaporator.

PhD Research

Subject	Institute	University
Ph.D. in Pharmaceutical Sciences	Department of Pharmaceutical Chemistry, University Institute of Pharmaceutical Sciences (UIPS), Chandigarh, India.	Panjab University, Chandigarh, India.

PostDoc Research

Subject	Institute	University
DST-NRF Innovation PostDoc Research Fellow in Pharmaceutical Sciences	Department of Pharmaceutical Chemistry, Discipline of Pharmaceutical Sciences, College of Health Sciences	University of KwaZulu-Natal (UKZN), Westville-Durban, South Africa.

Honorary Positions held

- ❖ **Adjunct Teaching (online)** - Faculty of Pharmaceutical Sciences, UCSI University, 56000, Cheras, Kuala Lumpur, Malaysia.
- ❖ **Honorary PostDoctoral Researcher** - College of Health Sciences, UKZN, South Africa for Anticancer Drug Research (**applied**).

Other Competitive Exams Qualified

1. Tamil Nadu Professional Course Entrance Examination (**TNPCEE**) [Mathematics, Biology and Physical Sciences (Physics & Chemistry)] for admission to B. Pharmacy (**undergraduate**).
2. Graduate Aptitude Test in Engineering (**GATE**) with **95.32** percentile for admission to M. Pharmacy (**postgraduate**), conducted by IIT-Chennai.
3. Distance learning course on ‘Intellectual Property Rights organized by “World Intellectual Property Organization (WIPO)” Geneva, Switzerland by online mode.

Achievements/Awards

- ❖ Awarded **Innovation PostDoctoral Research Fellowship** from National Research Foundation (**NRF**), Department of Science and Technology (**DST**), **South Africa** for Anticancer Drug Research.
- ❖ Awarded **PostDoctoral Research Fellowship** from the College of Health Sciences, UKZN, **South Africa** for Anticancer Drug Research.

- ❖ Awarded **Research Fellowship** in Science for Meritorious Students (**RFSMS**) by University Grants Commission (**UGC**), New Delhi, India.
- ❖ Awarded **AICTE-GATE** Fellowship by All India Council for Technical Education (**AICTE**) for **M. Pharm** Course.
- ❖ Achieved **Distinction** in M. Pharmacy - Pharmaceutical Chemistry Division, LM College of Pharmacy, Gujarat University, India.

Patents: 06 Patents

1. K. Sivanandhan, **C. Balakumar**, K. Rajshekhar, K. Afsana. *N*-substituted isatin hydrazones as antimycobacterial and antimicrobial agents. **South African Patent** (No. 2016/08234).
2. K. Sivanandhan, **C. Balakumar**, K. Rajshekhar, K. Afsana. Pharmaceutical Compounds. **PCT-International Patent** Application No. PCT/IB2017/057437, WO2018100484.
3. C. Sampath, B. Prathima, K. Kavita, P. Krishnamurthy, **C. Balakumar**, B. S. Afzal, R. Richie, V. Yogesh, A. Haritha, N. Arin. In silico screening, physicochemical and pharmacokinetic analysis of novel sulfonamides as potential antimicrobial drugs docked with protein targets: PDB: 2VF5, 1KZN and 1JIJ. **Australian Patent** Number: 2021105099, granted on 23-09-2021.
4. C. Sampath, B. Prathima, **C. Balakumar**, P. Krishnamurthy, C. Sridevi, K. Kavita, M. Parameshwar, R. Shruti, K. Sai Saranya, S. R. Kavya, V. R. Kishore Kumar. In silico evaluation and synthesis of novel sulfonamides as promising antiviral drugs docked with COVID-19 protein targets: SARS-CoV-2 main protease. **Australian Patent** Number: 2021105627, granted on 10-11-2021.
5. S. Govindaraju, S. Tabassum, C. Sampath, B. Prathima, K. Khatana, **C. Balakumar**, K. Potla, R. Garugumadi, S. Joripalli, I.L. Konathala, Computer aided drug design and green synthesis of novel pyrazole analogues as potential SARS-CoV-2 main protease inhibitors against anti COVID-19 protein targets. **Australian Patent** Number: 2021106444 granted on 01-12-2021.
6. S. B. Banappagoudar, S. Thakur, A. Chauhan, M. Alagusundaram, M. Pal, Rajni, R. Kumar, **C. Balakumar**, B. M. Sahoo, A. Kazim, A system for prediction, prevention, and diagnosis of heart related diseases at an early stage using deep learning. **Indian Patent** Application Number: 202221053088 published on 28-10-2022.

Paper Publications: 70

1. R. Raju, K. Chidambaram, **B. Chandrasekaran**, M.F. Bayan, T.K. Maity, A.M. Alkahtani, H.C. Chandramoorthy, Synthesis, pharmacological evaluation and molecular modeling studies of novel isatin hybrids as potential anticancer agents *Journal of Saudi Chemical Society* **2023**, 27, 101598 [Impact Factor: **4.712**] DOI: 10.1016/j.jscs.2023.101598.

2. B. Kushwaha, N.D. Kushwaha, M. Priya, **B. Chandrasekaran**, V.A. Obakachi, R. Chauhan, S. Kidwai, R. Singh, A.M. Ganai, R. Karpoormath, Novel fluorophenyl tethered thiazole and chalcone analogues as potential antitubercular agents: Design, synthesis, biological and in silico evaluations. *Journal of Molecular Structure*, **2023**, 1276, 134791 [Impact Factor: **3.841**] DOI: 10.1016/j.molstruc.2022.134791.
3. N.K. Jain, M. Tailang, S. Kumar, **B. Chandrasekaran**,* K. Chidambaram, Recognition of therapeutical potentials of Alchornea laxiflora (Benth.) Pax & K. Hoffm., an underexplored medicinal herb: A systematic review. *Frontiers in Pharmacology* **2022**, 13, 958453 [Impact Factor: **5.988**] DOI: 10.3389/fphar.2022.916324.
4. M.F. Bayan, S.M. Marji, M.S. Salem, Y.M. Begum, K. Chidambaram, **B. Chandrasekaran**, Development of polymeric-based formulation as potential smart colonic delivery system, *Polymers* **2022**, 14, 3697 [Impact Factor: **4.967**] DOI: 10.3390/polym14173697.
5. **B. Chandrasekaran***, M. Saravanan, Pharmacological and biochemical perspectives of kinase inhibitors in cancer and COVID-19 therapeutics, *Frontiers in Pharmacology* **2022**, 13, 916324 [Impact Factor: **5.818**] DOI: 10.3389/fphar.2022.916324.
6. A. Krishnan, R. Muthusamy, S. Thishana, **C. Balakumar**, A.A. Chuturgoon, G. Gaurav. S. Sachin Kumar, G. Monica, C. Dinesh, D. Kamal, C. Vivek, V. Chithravel, S. Mohd, A. Magda, S. Muthupandian, One-step synthesis of picolinohydrazides from fusaric acid: DFT structural characterisation and molecular inhibitory studies on metastatic tumor derived exosomal and non-exosomal proteins, *Journal of Molecular Structure* **2022**, 1255, 132442 [Impact Factor: **3.196**] DOI: 10.1016/j.molstruc.2022.132442.
7. I.K. Balachandran, G. Senguttuvan, S.K. Ilango, C. Kumarappan, M.F. Bayan, R. Mohamed, **B. Chandrasekaran**, Mucilage of *Coccinia grandis* as an efficient natural polymer-based pharmaceutical excipient, *Polymers* **2022**, 14, 215 [Impact Factor: **4.329**] DOI: 10.3390/polym14010215.
8. M.K. Ramar, K. Chidambaram, **B. Chandrasekaran**, R. Kandasamy, Standardization, in-silico and in-vivo safety assessment of methanol extract of *Ziziphus mauritiana* Lam leaves, *Regulatory Toxicology and Pharmacology* **2022**, 131, 105144 [Impact Factor: **3.271**] DOI: 10.1016/j.yrtph.2022.105144.
9. S. Karunanidhi, **B. Chandrasekaran**, H. Patel, F.B. Kayamba, S.R. Merugu, V. Kumar, S. Dhawan, B. Kushwaha, M.C. Mahlalela, R. Karpoormath, Novel thiomorpholine tethered isatin hydrazones as potential inhibitors of resistant *Mycobacterium tuberculosis*, *Bioorganic Chemistry* **2021**, 115, 105133 [Impact Factor: **5.275**] DOI: 10.1016/j.bioorg.2021.105133.
10. S. Mahmud, G.K. Paul, S. Biswas, S. Afrose, M.A. Mita, M.R. Hasan, M.S.S. Shimu, A. Hossain,

- M.M. Promi, F.K. Ema, K. Chidambaram, **B. Chandrasekaran**, A.M. Alqahtani, T.B. Emran, M.A. Saleh, Prospective role of peptide-based antiviral therapy against the main protease of SARS-CoV-2, *Frontiers in Molecular Biosciences* **2021**, 8, 628585 [Impact Factor: 4.188] DOI: 10.3389/fmolb.2021.628585.
11. A.M. Alqahtani, K. Chidambaram, A. Pino-Figueroa, **B. Chandrasekaran**, P. Dhanaraj, K. Venkatesan, Curcumin-Celecoxib: a synergistic and rationale combination chemotherapy for breast cancer, *European Review for Medical and Pharmacological Sciences* **2021**, 25, 1916-1927 [Impact Factor: 3.024] DOI: 10.26355/eurrev_202102_25086.
12. P. Borah, P. K. Deb, N. Al-Shar'I, L. Dahabiyeh, K. N. Venugopala, V. Singh, S. Hussain, S. Pottathil, S. Deka, **C. Balakumar**, D. D. Jaradat, Perspectives on RNA vaccine candidates for COVID-19, *Frontiers in Molecular Biosciences* **2021**, 8, 635245 [Impact Factor: 4.188] DOI: 10.3389/fmolb.2021.635245 (**Review article**).
13. P. Borah, P. K. Deb, **C. Balakumar**, M. Goyal, M. Bansal, S. Hussain, S. Pottathil, K. N. Venugopala, N. A. Al-Shar, S. Deka, V. Singh, Neurological consequences of SARS-CoV-2 infection and concurrence of treatment-induced neuropsychiatric adverse events in COVID-19 patients: Navigating the uncharted, *Frontiers in Molecular Biosciences* **2021**, 8, 627723 [Impact Factor: 4.188] DOI: 10.3389/fmolb.2021.627723 (**Review article**).
14. B. Rajashri, P. Borah, K. B. Bhushan, N. Al-Shar'I, **C. Balakumar***, D. D. Jaradat, M. Al-Zeer, S. Abu-Romman, Developmental landscape of potential vaccine candidates based on viral vector for prophylaxis of COVID-19, *Frontiers in Molecular Biosciences* **2021**, 8, 635337 [Impact Factor: 4.188] DOI: 10.3389/fmolb.2021.635337 (**Review article**).
15. S. Muthumanickam, P. Boomi, M. Nachiyappan, R.M. Balajee, R. Vidhyavathi, G.P. Poorani, G. Shanmugaraj, W. Yao, M. Biruntha, R. Subaskumar, **C. Balakumar***, M.F. Bayan, S. Ravikumar, J. Jeyakanthan, G.P. Halliah, K. Solomon, In silico screening of natural phytoconstituents towards identification of potential lead compounds to treat COVID-19, *Frontiers in Molecular Biosciences* **2021**, 8, 637122 [Impact Factor: 4.188] DOI: 10.3389/fmolb.2021.637122.
16. V. Karthik, S. Poornima, B. Hamed, A. Vigneshwaran, R. D. Dharun, S. Manikandan, R. Subbaiya, K. Anand, P. Boomi, **C. Balakumar**, A. Selvaraj, M. Saravanan, Emerging Therapeutic Approaches to Combat COVID-19: Present status and future perspectives, *Frontiers in Molecular Biosciences* **2021**, 8, 604447 [Impact Factor: 4.188] DOI: 10.3389/fmolb.2021.604447 (**Review article**).
17. A. Krishnan, F. Khan, Faez, T. Singh, E. Palani, **C. Balakumar**, D. Premnath, D. Lai, A.A. Chuturgoon, M. Saravanan, Green synthesis, experimental and theoretical studies to discover novel binders of exosomal tetraspanin CD81 protein. *ACS Omega* **2020**, 5, 17973–17982 [Impact Factor: 2.87]. [CAS, a division of the **American Chemical Society**, has identified novel compounds from

- this published research, resulting in a unique CAS Registry Number® being added to the CAS Content Collection™, received CAS REGISTRY® Innovators Program certificate for this paper].
18. P. Boomi, R. Ganesan, G. Prabu, S. Jegatheeswaran, **C. Balakumar**, A. Krishnan, H.G. Prabu, J. Jeyakanthan, M. Saravanan, Phyto-engineered gold nanoparticles (AuNPs) with potential antibacterial, antioxidant, and wound healing activities under *in vitro* and *in vivo* conditions. *International Journal of Nanomedicine*, **2020**, *15*, 7553-7568 [Impact Factor: **5.115**].
 19. K. Anand, R. Rajamanikandan, A. Selva Sharma, M. Ilanchelian, Faez Iqbal Khan, C. Tiloke, Naresh Kumar Katari, P. Boomi, **C. Balakumar**, M. Saravanan, S. Palanisamy, M. Ramesh, Dakun Lai, A. A. Chuturgoon, Human serum albumin interaction, *in silico* and anticancer evaluation of Pine-Gold nanoparticles. *Process Biochemistry* **2020**, *89*, 98-109 [Impact Factor: **2.952**].
 20. K. Anand, Tricia Naicker, Sooraj Baijnath, Malose J. Mphahlele, Naresh Kumar Katari, Sizwe J. Zamisa, **C. Balakumar**, K. Vijayakumar, S. Palanisamy, M. Saravanan, P. Boomi and Anil Chuturgoon, TPGS-mediated one-pot synthesis, XRD structural analysis, antimicrobial evaluation and molecular docking of novel heterocycles as potential inhibitors of p53-MDM2 protein. *Journal of Molecular Structure* **2020**, *1202*, 127252 [Impact Factor: **2.463**].
 21. A.A. Bilal, M.O. Haifa'a, **C. Balakumar**, A. Razan, Herbal medication for the management of diabetes mellitus: A review. *Current Traditional Medicine* **2020**, *6*, 331-349 (**Review article**).
 22. P. Boomi, G.P. Poorani, S. Selvam, S. Palanisamy, S. Jegatheeswaran, K. Anand, **C. Balakumar**, K. Premkumar, H.G. Prabu, Green biosynthesis of gold nanoparticles using *Croton sparsiflorus* leaves extract and evaluation of UV protection, antibacterial and anticancer applications. *Applied Organometallic Chemistry* **2020**, *34*, e5574 [Impact Factor: **3.14**].
 23. M.S. Shaikh, **B. Chandrasekaran**, M.B. Palkar, A.M. Kanhed, A. Kajee, K.P. Mlisana, P. Singh, M. Ghai, M.C. Mahlalela, R. Karpoomath, Synthesis and biological evaluation of novel carbazole hybrids as promising antimicrobial agents. *Chemistry and Biodiversity*, **2020**, *17*, e1900550 [Impact Factor: **2.039**].
 24. S. Cherukupalli, **C. Balakumar**, R.R. Aleti, N. Sayyad, G. A. Hampannavar, S.R. Merugu, H.R. Reddy, R. Banerjee, R. Karpoomath. Synthesis of 4,6-disubstituted pyrazolo[3,4-d]pyrimidine analogues: Cyclin-dependent kinase 2 (CDK2) inhibition, molecular docking and anticancer evaluation. *Journal of Molecular Structure* **2019**, *1176*, 538-551 [Impact Factor: **2.463**].
 25. **C. Balakumar**, S. Cherukupalli, S. Karunanidhi, A. Kajee, R.R. Aleti, N. Sayyad, B. Kushwaha, S.R. Merugu, K.L. Mlisana, R. Karpoomath. Design and synthesis of novel heterofused pyrimidine analogues as effective antimicrobial agents. *Journal of Molecular Structure* **2019**, *1183*, 246-255. [Impact Factor: **2.463**].
 26. N. Agrawal, **C. Balakumar**, A. Al-Aboudi. Recent advances in the in-silico structure-based and

- ligand-based approaches for the design and discovery of agonists and antagonists of A_{2A} adenosine receptor. *Current Pharmaceutical Design* **2019**, 25, 774-782 [Impact Factor: **2.208**] (**Review article**).
27. K. Shaik, P. K. Deb, R. P. Mailavaram, **C. Balakumar**, S. Kachler, K.-N. Klotz, A.M.Y. Jaber. 7-Amino-2-aryl/heteroaryl-5-oxo-5,8-dihydro[1,2,4]triazolo[1,5-*a*]pyridine-6-carbonitriles: Synthesis and adenosine receptor binding studies. *Chemical Biology and Drug Design* **2019**, 94, 1568-1573 [Impact Factor: **2.548**].
28. P. K. Deb, **C. Balakumar***, R. P. Mailavaram, R. K. Tekade, A.M.Y. Jaber. Molecular modeling approaches for the discovery of adenosine A_{2B} receptor antagonists: current status and future perspectives. *Drug Discovery Today* **2019**, 24, 1854-1864 [Impact Factor: **7.321**] (**Review article**).
29. M. S. Shaikh, A. M. Kanhed, **C. Balakumar**, M. B. Palkar, N. Agrawal, C. Lherbet, G. A. Hampannavar, R. Karpoomath. Discovery of novel *N*-methyl carbazole tethered rhodanine derivatives as direct inhibitors of *Mycobacterium tuberculosis* InhA. *Bioorganic and Medicinal Chemistry Letters* **2019**, 29, 2338-2344 [Impact Factor: **2.572**].
30. **C. Balakumar***, S. Sara, A.M.Y. Jaber, K. Ghadir, N. Agrawal, Therapeutic potentials of A_{2B} adenosine receptor ligands: Current status and perspectives. *Current Pharmaceutical Design* **2019**, 25, 2741-2771 [Impact Factor: **2.208**] (**Review article**).
31. **C. Balakumar**, M. Ramesh, R. Karpoomath, M. E. Soliman, C. Srinivasulu and G. A. Hampannavar. Ligand- and structure-based *in silico* approaches to identify the potential kinesin spindle protein (KSP) inhibitors as anticancer agents. *Journal of Biomolecular Structure and Dynamics*, **2018**, 36, 3687-3704 [Impact Factor: **3.31**].
32. **C. Balakumar**, D. Pran Kishore, S. Kachler, A. Raghuram Rao, M. Raghuprasad, K.-N. Klotz. Synthesis and adenosine receptors binding studies of new fluorinated analogues of pyrido[2,3-*d*]pyrimidines and Quinazolines. *Medicinal Chemistry Research* **2018**, 27, 756-767 [Impact Factor: **1.783**].
33. D. Pran Kishore, **C. Balakumar**, M. Raghuprasad, K. Venkat Rao, R. Kaur, S. Kachler, K.-N. Klotz, A. Raghuram Rao, Synthesis, Adenosine receptor binding and molecular modeling studies of novel thieno[2,3-*d*]pyrimidine derivatives. *Chemical Biology and Drug Design* **2018**, 19, 962-969 [Impact Factor: **2.548**].
34. S. Cherukupalli, G. A. Hampannavar, S.Chinnam, **C. Balakumar**, N. Sayyad, F. Kayamba, R.R Aleti, R. Karpoomath. An appraisal on synthetic and pharmaceutical perspectives of pyrazolo[4,3-*d*]pyrimidine scaffold. *Bioorganic and Medicinal Chemistry* **2018**, 26, 309-339 [Impact Factor: **3.073**]. (**Review article**)
35. S.P. Khathi, **C. Balakumar**, S. Karunanidhi, C. L. Tham, F. Kozileski, R. Karpoomath. Design and

- synthesis of novel thiadiazole-thiazolone hybrids as potential inhibitors of the human mitotic kinesin Eg5. *Bioorganic and Medicinal Chemistry Letters* **2018**, 28, 2930-2938 [Impact Factor: **2.572**].
36. S.K. Talapatra, C. L. Tham, P. Guglielmi, R. Cirilli, **C. Balakumar**, R. Karpoormath, S. Carradori, F. Kozileski, Crystal structure of the Eg5 - K858 complex and implications for structure-based design of thiadiazole-containing inhibitors. *European Journal of Medicinal Chemistry* **2018**, 156, 641-651 [Impact Factor: **5.572**].
37. N. Sayyad, Z. Cele, R.R Aleti, M. Bera, S. Cherukupalli, **C. Balakumar**, N.D. Kushwaha, R. Karpoormath. Copper-catalyzed self-condensation of benzamide: domino reactions towards quinazolinones. *European Journal of Organic Chemistry* **2018**, 2018, 5382-5388 [Impact Factor: **2.889**].
38. S. Cherukupalli, **C. Balakumar**, V. Krystof, R.R Aleti, N. Sayyad, S.R. Merugu, N.D. Kushwaha, R. Karpoormath. Synthesis, anticancer evaluation, and molecular docking studies of some novel 4,6-disubstituted pyrazolo[3,4-*d*]pyrimidines as cyclin-dependent kinase 2 (CDK2) inhibitors. *Bioorganic Chemistry* **2018**, 79, 46-59 [Impact Factor: **4.831**].
39. C. Srinivasulu, R. Karpoormath, **C. Balakumar**, G. A. Hampannavar, N. Thapliyal, P. Venkata Narayana. An insight on synthetic and medicinal aspects of pyrazolo[1,5-*a*]pyrimidine scaffold. *European Journal of Medicinal Chemistry* **2017**, 126, 298-352 [Impact Factor: **5.572**] (**Review article**).
40. A. M. Sulaiman, S. Ravi, A. Thangamani, **C. Balakumar**, M. Ramesh, Synthesis, antiproliferative activity and docking study of novel rhodanine derivatives as Bcr-Abl T1351 inhibitors. *Research on Chemical Intermediates* **2017**, 43, 5871-5887 [Impact Factor: **2.262**].
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43. K.K. Akula, **B. Chandrasekaran**, M. Kaur, S.K. Kulkarni. Development and validation of a specific RP-HPLC method for the estimation of γ -aminobutyric acid in rat brain tissue samples using benzoyl chloride derivatization and PDA detection. *Acta Chromatographica* **2015**, 27, 413-433 [Impact Factor: **1.418**].
44. D. Pran Kishore, K. Rajwinder, **C. Balakumar**, B. Madhu, D. Gill, K. Venkat Rao, A. Raghuram Rao, M. Raghuprasad. Synthesis, Anti-inflammatory evaluation and docking studies of some new thiazole derivatives. *Medicinal Chemistry Research* **2014**, 23, 2780-2792 [Impact Factor: **1.783**].

45. T. Anitha, **C. Balakumar**, KB Ilango, C Benedict Jose, D Vetrivel, Antidiabetic activity of the aqueous extracts of *Foeniculum vulgare* on streptozotocin-induced diabetic rats. *International Journal of Advances in Pharmacy, Biology and Chemistry*, **2014**, 3, 487-494.
46. K. Venkat Rao, **C. Balakumar**, B. Lakshmi Narayana, D. Pran Kishore, K. Rajwinder, A. Raghuram Rao, Transesterification of trimethyl ortho- acetate: An efficient protocol for the synthesis of 4-alkoxy-2-amino- thiophene-3-carbonitriles. *Tetrahedron Lett.* **2013**, 54, 1274-1278 [Impact Factor: **2.275**].
47. B. Lakshmi Narayana, **C. Balakumar**, K. Venkat Rao, K. Rajwinder, A. Raghuram Rao. Pharmacophore based 3D-QSAR study of biphenyl derivatives as non-steroidal aromatase inhibitors in JEG-3 cell lines. *Medicinal Chemistry* **2013**, 9, 974-984 [Impact Factor: **2.577**].
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63. K.C. Panda, B.V.V Ravi Kumar, B.M. Sahoo, P. Swain, **B. Chandrasekaran**, Molecular Docking, Multicomponent One-pot Synthesis of Pyrimidine Derivatives as Anti-mycobacterial Agents. (Manuscript (ID: BMS-AIA-2022-34) **accepted-Copy Editing Stage** as a research article to Anti-Infective Agents-Bentham Science Publishers).

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65. M.Y. Begam, S. Muthumanickam, P. Boomi, **B. Chandrasekaran**, B. Ramachandran, A. Siddiqua, Computational design of a novel vaccine candidate against COVID. (Manuscript under revision in Molecules-MDPI).
66. S. Ashique, N. Kumar, A. Hussain, N. Mishra, S. Muthu, **B. Chandrasekaran**, A. Krishnan, Exosomes, biomarkers, and their therapeutic implications in the management of neurodegenerative disorders (Review Manuscript submitted to Nanomedicine-Elsevier).
67. B. Kushwaha, N.D. Kushwaha, M. Priya, **B. Chandrasekaran**, V.A. Obakachi, R. Chauhan, S. Kidwai, R. Singh, A.M. Ganai, R. Karpoomath, Pyridazinone: A privileged scaffold for synthetic and biomedical applications (A review Manuscript-under preparation).
68. S. Muthumanickam, M. Manikandan, M.H. Alyami, P. Boomi, **B. Chandrasekaran**, In silico investigation of phytoconstituents of Moringa Oleifera towards the identification of potential antiviral lead compound (Manuscript submitted to Saudi Pharmaceutical Journal-Elsevier).
69. S. Ashique, A. Hussain, J.B.H. Gowda, **B. Chandrasekaran**, S. Muthu, V.P. Chavda, J.S. Joseph, K. Anand, Probiotics: A novel paradigm for the management of lung cancer- Success and bottlenecks. (Review Manuscript submitted to Microbial Pathogenesis-Elsevier).
70. S. Karunanidhi, **B. Chandrasekaran**, H. Patel, F.B. Kayamba, V. Kumar, S. Dhawan, B. Kushwaha, M.C. Mahlalela, A. Kajee, K.P. Mlisana, R. Karpoomath, Synthesis of novel isatin hybrids as promising antifungal agents against clinical isolate of *Cryptococcus neoformans* (Manuscript **under preparation**).

Book Chapters: 18

1. **Balakumar C***, Dina El-Rabie O., Sara N.A. and Tekade, R.K. Ethics and Legal Protection of Uses of Computer Applications in Pharmaceutical Research, Dosage Form Design Parameters (Academic Press), **2018**, Volume II-Advances in Pharmaceutical Product Development and Research, 757-770. (DOI: <https://doi.org/10.1016/B978-0-12-814421-3.00022-1>).
2. **Balakumar C***, Sara N.A., Omar Al-Attraqchi, Kaushik K. and Tekade, R.K. Computer-Aided Prediction of Pharmacokinetic (ADMET) Properties, Dosage Form Design Parameters (Academic Press), **2018**, Volume II-Advances in Pharmaceutical Product Development and Research, 731-755. (DOI: <https://doi.org/10.1016/B978-0-12-814421-3.00022-1>).
3. Raghu Prasad M., Pran Kishore D., **Balakumar C.**, Rahul M., Tekade, R.K. Basics of Crystallization Process Applied in Drug Exploration (Academic Press), **2018**, Volume II-Advances

- in Pharmaceutical Product Development and Research, 67-103.
(DOI: <https://doi.org/10.1016/B978-0-12-814421-3.00003-8>).
4. Pran Kishore D., Omar, A.A., **Balakumar C.**, Anant, P., Tekade, R. K. Protein/Peptide Drug Delivery Systems: Practical Considerations in Pharmaceutical Product Development (Academic Press), **2018**, Volume III-Advances in Pharmaceutical Product Development and Research, 652-684. (DOI: <https://doi.org/10.1016/B978-0-12-817909-3.00016-9>)
 5. **Balakumar C.**, Nikhil A. and Sandeep K. Pharmacophore development. Reference Module in Life Sciences, Encyclopedia of Bioinformatics and Computational Biology. (Elsevier Inc.), Volume 2, **2019**, 677-687. (DOI: <https://doi.org/10.1016/B978-0-12-809633-8.20276-8>).
 6. Yazan Al-Thaher, **Balakumar Chandrasekaran***, Sarojini Jeeva Panchu, The importance of nano-materials characterization techniques. Integrative Nanomedicines for New Therapies, Edited by Anand Krishnan and Anil Chuturgoon, Springer-Nature, Switzerland AG, **2020**, 19-37 ((DOI: https://doi.org/10.1007/978-3-030-36260-7_2).
 7. Enas Abu-Qudais, **Balakumar Chandrasekaran***, Sara Samerneh, Ghadir Kassab, Nanomedicines in cancer management: diagnosis, therapy and nanodrug delivery. Integrative Nanomedicines for New Therapies, Edited by Anand Krishnan and Anil Chuturgoon, Springer-Nature, Switzerland AG, **2020**, 321-356 (DOI: https://doi.org/10.1007/978-3-030-36260-7_12).
 8. Mahendra Singh, Navneeta Singh, **Balakumar Chandrasekaran***, Pran Kishore Deb, Nanomaterials in Nutraceuticals Applications. Integrative Nanomedicines for New Therapies, Edited by Anand Krishnan and Anil Chuturgoon, Springer-Nature, Switzerland AG, **2020**, 405-435 (DOI: https://doi.org/10.1007/978-3-030-36260-7_14).
 9. **Balakumar C***, Haneen Al-J., Sara S., Ghadir K., Pran Kishore D., Puneet Kumar., Bilal Al-J., Yazan A-T., Yazan Al-B. Drug-Receptor Interactions-Chapter 2, Frontiers in Pharmacology of Neurotransmitters, **2020**, 31-68. Editors: Puneet Kumar and Pran Kishore Deb, Springer-Nature Singapore Pte Ltd. (DOI: https://doi.org/10.1007/978-981-15-3556-7_2).
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 11. **Balakumar Chandrasekaran***, Pran Kishore Deb, Mohammed Foud Bayan, Yazan Al-Bataineh, Qutaiba Ahmed Al-Khames Aga, Dasan M. M. Jaradat and Ashok Kumar Balaraman, Chapter-18. Nanocarriers in novel drug delivery system. Handbook on Nano-Biomaterials for Therapeutics and Diagnostic Applications, Edited by Krishnan Anand, Muthupandian Saravanan, Balakumar Chandrasekaran, Suvardhan Kanchi, Sarojini Jeeva Panchu, Quan-Sheng Chen for Elsevier

- Publisher, **2021**, 421-437 (DOI: <https://doi.org/10.1016/C2019-0-02593-9>).
12. Mohit Sharma, Umme Abiha, Parul Chugh, **Balakumar C.** Nikhil Agrawal, Bioinformatics in cancer detection, Computation in Bio-Informatics and its Multidisciplinary Applications, **2021**, Editors: S. Balamurugan, K. Anand, Dinesh Goyal, C. Balakumar, P. Boomi, Wiley-Scrivener, **2021**, 229-243 (ISBN: 978-1-119-65476-6).
 13. S. Muthumanickam, P. Boomi, R. Subashkumar, S. Palanisamy, A. Sudha, K. Anand, **C. Balakumar**, M. Saravanan, G. Poorani, Yao Wang, S. Ravikumar and M. Mohamed Yacoob Syed Ali, An insight of protein structure predictions using homology modelling, Computation in Bio-Informatics and its Multidisciplinary Applications, Editors: S. Balamurugan, K. Anand, Dinesh Goyal, C. Balakumar, P. Boomi, Wiley-Scrivener, **2021**, 265-277 (ISBN: 978-1-119-65476-6).
 14. K. Anand, **B. Chandrasekaran**, G. Gupta, H. Dureja, S.K. Singh, M. Gulati, D. Chellappan, B. Balasubramanian, I. Femeela, V.A. Arumugam, K. Dua, Biosynthetic exosome nanoparticles isolation, characterization, and their diagnostic and therapeutic applications, Advanced Drug Delivery Systems in the Management of Cancer, Editors: K. Dua, M. Mehta, T.A. Pinto, L.G. Pont, K.A. William, M.J. Rathbone, Elsevier Publisher, **2021**, 373-385 (DOI: <https://doi.org/10.1016/B978-0-323-85503-7.00037-7>).
 15. M.F. Bayan, **B. Chandrasekaran**,* N. Mansour, Y. Alrefaie, K. Ashour, H.K. Pathan, Computational Pharmaceutics" in the book entitled "Recent and Future Trends in Pharmaceutics", Vol. 3: Novel formulations and future trends, **2023**, (to be published by Elsevier Ltd. USA, as an imprint of Academic Press, USA) [in press].
 16. Vijeta Bhattacharya, Namrata Mishra, Radha Sharma, Subodh K. Dubey, **C. Balakumar**, M. F. Bayan, "Recent trends in phytochemical constituents for targeted discovery and development in the management of major endocrinological disorder-develops due to adapting sedentary lifestyle", in the book 'Recent Frontiers of Phytochemicals' 1st Edition, **2023**, (to be published by Elsevier Ltd. USA, as an imprint of Academic Press, USA) [in press].
 17. **B. Chandrasekaran**,* M.F. Bayan, N. Mansour, R. Oweis, R. Al-Halabi, Computer-Aided Biopharmaceutical Model Development in the book entitled "Recent and Future Trends in Pharmaceutics", Vol. 2: Recent and future trends in pharmaceutics (to be published by Elsevier Ltd. USA, as an imprint of Academic Press, USA) **2023**, [in press].
 18. Varinder Singh, Md Altamash Ahmad, Balraj Saini, **Balakumar Chandrasekaran**, Recent advances in sustainability science for environmental conservation in the book entitled, "Green Chemistry, Elsevier" [under review].

Editorial-Books and Journals: 08

1. A book titled, “**Handbook on Nano-biomaterials for therapeutic and diagnostic applications**” for the prestigious **Publisher-Elsevier**. Editors: K. Anand, M. Saravanan, **Balakumar Chandrasekaran**, S. Kanchi, J. Panchu, Quan-Sheng Chen. **2021**, (DOI: <https://doi.org/10.1016/C2019-0-02593-9>; ISBN: 978-0-12-821013-0).
2. A book titled, “**Computation in bioinformatics and its multidisciplinary applications**” for the prestigious **Wiley-Scrivener Publishing House**. Editors: S. Balamurugan, K. Anand, D. Goyal, **Balakumar Chandrasekaran**, P. Boomi. **2021**, (ISBN: 9781119654711).
3. A book titled, “**Small molecules and peptide-based candidates as therapeutics and vaccines for COVID-19 pandemic**” for the Journal **Frontiers in Molecular Biosciences**, Editors: Dasan Jaradat, Munir Ali Mohammad, **Balakumar Chandrasekaran**, Saeid Abu-Romman (**2021**).
4. A Journal issue titled, “**Pharmacological and biochemical perspectives of kinase inhibitors in cancer and COVID-19 therapeutics-Volume I**” for the Journal **Frontiers in Pharmacology** [Impact Factor: **4.225**]. Editors: **Balakumar Chandrasekaran**, Muthupandian Saravanan (**2022**).
5. A Journal issue titled, “**Pharmacological and biochemical perspectives of kinase inhibitors in cancer and COVID-19 therapeutics-Volume II**” for the Journal **Frontiers in Pharmacology** [Impact Factor: **4.225**]. Editors: **Balakumar Chandrasekaran**, Muthupandian Saravanan (ongoing-**2023**).
6. A book titled, “**Polymers in Functional Foods and Drugs: Chemistry and Essential Applications**” for the prestigious **Wiley-Scrivener Publishing House**. Editors: **Balakumar Chandrasekaran** and Mohammad F. Bayan, **2023** (in process).
7. A Journal issue titled, “**Chemistry and Applications of Polymers in Pharmaceuticals and Foods**” for the Journal **Molecules**, MDPI Publisher, Editors: **Balakumar Chandrasekaran** and Mohammad F. Bayan, **2023** (in process) [Impact Factor: **4.972**].
8. A Journal issue titled, “**Artificial Intelligence in Computational Design and Synthesis of Novel Drugs**” for the Journal **Frontiers in Pharmacology** [Impact Factor: **5.988**]. Editors: **Balakumar Chandrasekaran**, Luciana Scotti (ongoing-**2023**).

Scientific Presentations in conferences/seminars/invited lectures: 27

Past 3 years (2020-23) notable events:-

1. Delivered a lecture titled, “Computer-aided drug design (CADD) Approaches for New Era of Medication” in the **International Conference Webinar “Biomaterials on Healthcare Application”** organized by Karunya Institute of Technology and Sciences (Deemed to be University) Coimbatore, India on 30th May-2020.

2. Delivered a lecture titled, “Computational tools in medicinal chemistry: Concepts and applications” in the **International Virtual Learning Series** organized by Arulmigu Kalasalingam College of Pharmacy, Tamilnadu, India on 11th August-2020.
3. Delivered a lecture titled, ‘Computer-aided drug design (CADD) Approaches for New Era of Medication’ for **AICTE Sponsored Online Faculty Development Program (FDP)**, Roland Institute of Pharmaceutical Sciences, Berhampur, Odisha, India on 18th Feb-2021.
4. Delivered a lecture titled, ‘Artificial intelligence in Drug Development: Recent trends and Future Perspective’ for **AICTE ATAL Academy sponsored Online Faculty Development Program (FDP)**, Roland Institute of Pharmaceutical Sciences, Berhampur, Odisha, India on 5th July-2021.
5. Delivered a lecture titled, ‘Artificial intelligence in Drug Design and Discovery’ for **DBT sponsored Online Popular Lecture Series**, V.V. Vanniaperumal College for Women, Tamilnadu, India on 5th March-2022.
6. Delivered oral presentation titled, “Artificial Intelligence in Drug Design and Synthesis” in the 1st International Conference of the Faculty of Sciences & Faculty of Pharmacy & The 17th Jordanian Chemistry Conference (JCC17) “Prospects for Chemical and Pharmaceutical Industries” (ICPCPI) during 15 – 16 Nov-2022 at Isra University, Amman, Jordan.
7. Poster Presentation on ‘In Vitro Evaluation of Smart Pellets as Intelligent Drug Delivery Systems.” Proceedings of the 1st International Conference of the Faculty of Sciences & Faculty of Pharmacy & The 17th Jordanian Chemistry Conference (JCC17) “Prospects for Chemical and Pharmaceutical Industries” (ICPCPI) during 15 – 16 Nov-2022 at Isra University, Amman, Jordan.
8. Delivered oral presentation titled, “Polymeric-Based Formulation as Smart Drug Delivery System” in the e-conference named ‘Polymers e-con2022’ organized by Research catalyst.

Workshops / Seminars: 18

Past 3 years (2020-23) notable events:-

1. Participated One Day Workshop ‘**Training on Processing of NMR raw data using Topspin**’ organized by **Jordanian Chemical Society**, Amman, on 29th Feb-2020.
2. Participated in the **International Conference Webinar** “Post COVID-19: Science and Technology” organized by SRM university, India on 29th May-2020.
3. Pharmacy track **co-ordinator** for the 10th International Conference on “Technology, Innovation and Management for Sustainable Development” organized by ITM university, India on 25-26th March-2022.
4. Participated in the **Intellectual Property Awareness/Training Program** under National Intellectual Property Awareness Mission organized by Intellectual Property Office, India on 5th April-2022.
5. Participated in the **Intellectual Property Awareness/Training Program** under National Intellectual Property Awareness Mission organized by Intellectual Property Office and MoE’s Innovation Cell, India on 26th April-2022.
6. Participated in the Webinar on ‘NEP Implementation with special reference to Multiple Entry and Exit’

organized by UGC-Human Resource Development Centre, Devi Ahilya Vishwavidyalaya-Indore, India on 24th June-2022.

Supervision/Guidance of Master's Projects/Thesis: 14

1. Mr. Rakesh Gupta, Analytical method development and validation for the related substance of pemetrexed disodium injection by RP-HPLC. Karpagam University (2012) India.
2. Ms. Divya Siriparapu, Development and validation of a bioanalytical method for estimation norgestrel in human k₂- EDTA –plasma using LC-MS/MS method. Karpagam University (2012) India.
3. Mr. T. Lingaraj, Analytical method development and validation for the quantitative estimation of dorzolamide hydrochloride in ophthalmic solution form by RP-HPLC. Karpagam University (2012) India.
4. Mr. M. Chandrasekar, Analytical method development and validation for the quantitative estimation of tolterodine tartrate in capsule formulation by RP-HPLC. Karpagam University (2012) India.
5. Mr. M. Arun Kumar, Liquid chromatography-mass spectrometric (LC-MS) studies on combination of atorvastatin and metoprolol and its stress degradation products. Karpagam University (2012) India.
6. Mrs. Sam Pretty Khathi, Design, synthesis and evaluation of novel thiadiazoline-thiazolone hybrids as kinase inhibitors. University of KwaZulu-Natal (2017), South Africa.
7. Mr. Mohammed J. Abunuwar, Synthesis of novel biologically active heterocyclic compounds. Al-Balqa Applied University (2020), Jordan.
8. Mr. Mohammed J. Abunuwar, Synthesis of novel biologically active heterocyclic compounds. Al-Balqa Applied University (2020), Jordan.
9. Km. Hema Singh, Formulation and evaluation of dosage form for management of kidney stones. ITM University-Gwalior (2022) India.
10. Mr. Prashant Sharma, Entrapment of enzyme in gelatin gel (pepsin). ITM University-Gwalior (2022) India.
11. Mr. Rajveer Singh Rajput, Formulation and in vitro evaluation of Divalproex sodium bilayered tablets. ITM University-Gwalior (2022) India.
12. Mr. Ranjit Singh Rajput, Formulation and evaluation or optimization of oxcarbazepine liquisolid compacts. ITM University-Gwalior (2022) India.
13. Mr. Rishiraj Saxena, Formulation development and evaluation of Midazolam injection BP (1 mg/ml). ITM University-Gwalior (2022) India.

14. Mr. Hammad Mahmood, Formulation and evaluation of Telmisartan fast dissolving tablets. ITM University-Gwalior (2022) India.

Research Grants and Projects completed: 18

International Collaborative Projects/Grants: 03 Ongoing

1. International Collaborative Research Grant: **Kingdom of Saudi Arabia**. Co-Principal Investigator in project entitled “Mechanistic insight into the immunomodulatory and antiviral potential of Bodinioside: plant-derived immunostimulant from an endangered medicinal herb of Asir region, Saudi Arabia”. Project Number: RGP.2/52/43 and the period from April-2022 to March 2023.
2. **Co-Principal Investigator** in a project entitled “Formulation and Evaluation of Medicated Sanitary Pads- An Appreciation towards Women’s -Reproductive Health under **BIG scheme of BIRAC** (In process) in **India**.
3. Going Global Partnerships Exploratory Grant from **British Council-UK** for ITM University-India and **De Montfort University-UK**. The project period is from 11th December-2021 to 01 August-2022.
