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(71)Name of Applicant :
1)Mr. Kokkula Pavan Kumar
Address of Applicant :Associate Professor, Faculty of Pharmaceutical Sciences, Motherhood University, Karoundi village Bhagwanpur, Roorkee, Haridwar, Uttarakhand, Pin Code:247661 -----
2)Dr. Nagesh D R
3)Dr. Rajkumar Madappan
4)Dr. Deepak Prashar
5)Mr. Pradyumn Tiwari
6)Mr. Ravibhushan Vishwakarma
7)Dr. Jisha James
8)Miss. Afsana Bano
9)Dr. Basu Venkateswara Reddy
10)Miss. Rani Yadve
11)Miss. Neha Yadav
12)Mr. Jeetendra Rajpoot
Name of Applicant : NA
Address of Applicant : NA
(72)Name of Inventor :
1)Mr. Kokkula Pavan Kumar
Address of Applicant :Associate Professor, Faculty of Pharmaceutical Sciences, Motherhood University, Karoundi village Bhagwanpur, Roorkee, Haridwar, Uttarakhand, Pin Code:247661 -----
2)Dr. Nagesh D R
Address of Applicant :Professor, East Point College of Pharmacy, Jnana Prabha Campus, Virgonagar, Bidarahalli, Bengaaluru, Karnataka, Pin code: 560049 -----
3)Dr. Rajkumar Madappan
Address of Applicant :Professor and Head, Pushpagiri College of Pharmacy, Medicity Campus, Perumthruthy, Thiruvalla, Kerala, Pin Code: 689107 -----
4)Dr. Deepak Prashar
Address of Applicant :Professor, LR Institute of Pharmacy, Jabli-Kyar, Solan, Himachal Pradesh, Pin Code:173223 -----
5)Mr. Pradyumn Tiwari
Address of Applicant :Assistant Professor, Aman Pharmacy College, Dholakhera, Jhunjhunu, Rajasthan, Pin Code: 333307 -----
6)Mr. Ravibhushan Vishwakarma
Address of Applicant :Assistant Professor, Lifeline Educational Institute - Faculty of Pharmacy, Samenda, Azamgarh, Uttar Pradesh, Pin Code:276128 -----
7)Dr. Jisha James
Address of Applicant :Professor, MGM college of pharmacy, Vilayancode, Pilathara, Kannur, Kerala, Pin Code: 670504 -----
8)Miss. Afsana Bano
Address of Applicant :Lecturer, Aman Pharmacy College, Dholakhera, Jhunjhunu, Rajasthan, Pin Code: 333307 -----
9)Dr. Basu Venkateswara Reddy
Address of Applicant :Professor and Head, Department of Pharmaceutics, Sri K.V.College of Pharmacy, M.G. Road, Chikkaballapura, Karnataka, Pin Code: 562101 -----
10)Miss. Rani Yadve
Address of Applicant :Student, ITM University, Turari Campus, Gwalior, Madhya Pradesh, Pin Code: 475001 -----
11)Miss. Neha Yadav
Address of Applicant :Associates Professor, Vikrant University, Gwalior, Madhya Pradesh, Pin Code: 474006 -----
12)Mr. Jeetendra Rajpoot
Address of Applicant :Student, ITM University, Turari Campus, Gwalior, Madhya Pradesh, Pin Code: 475001 -----

(57) Abstract :
The present invention relates to a nanocarrier-based drug delivery system designed for the targeted treatment of brain tumors. The system utilizes biocompatible and biodegradable nanoparticles that encapsulate therapeutic agents, such as chemotherapeutics, and are functionalized with ligands like transferrin to enhance crossing of the blood-brain barrier (BBB). The nanoparticles are engineered with optimal size (100-200 nm) and surface charge to ensure stability, effective drug loading, and tumor-specific delivery. The drug release profile is controlled and sustained, enabling prolonged therapeutic effects. The system aims to minimize systemic toxicity and enhance the bioavailability of drugs at the tumor site, offering an innovative approach for more efficient and targeted brain tumor treatments. The invention demonstrates a promising solution for overcoming the limitations of current brain cancer therapies, providing a safer and more effective alternative

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