Title:	Pharmaceutical cocrystallization: polymorphs, salts and cocrystals
Authors:	Choudhury, Karanam, M. A. R. (/jspui/browse?type=author&value=Choudhury%2C+Karanam%2C+M.+A.+R.) Joshi, Verma, I. M. (/jspui/browse?type=author&value=Joshi%2C+Verma%2C+I.+M.) Gulati, Mukhopadhyay, A. A. (/jspui/browse?type=author&value=Gulati%2C+Mukhopadhyay%2C+A.+A.)
Keywords:	pharmaceutical cocrystal biological activity pharmacokinetics
Issue Date:	2021
Publisher:	Foundations and Advances
Citation:	Acta Crystallographica Section a Foundations and Advances, 77(a2), C878–C878.
Abstract:	Pharmaceutical cocrystallization has been an active field of research in the last couple of decades. A large number of research groups have been working in this area and have contributed significantly in the development of new materials derived from known active drug molecules. A number of reviews [1-3] have summarised the contributions of all the major research groups working in the area. In the last decade, our group has been involved in the development of salts and cocrystals of a library of drug molecules, which pose various challenges in formulations due to their poor aqueous solubility and low dissolution rates or high moisture sensitivity. Our experiments on fluconazole, voriconazole, valproic acid, enrofloxacin, lamivudine, amoxapine, levofloxacin, ofloxacin, etc has demonstrated a range of exciting results. Our efforts in forming cocrystals of fluconazole (antifungal agent) with various monobasic and dibasic acids have resulted into a series of new polymorphs of the parent drug instead of formation of salts or cocrystals [4]. These results highlighted the importance of possible intermolecular interactions between the drug and the conformer in solution. In contrary, voriconazole (antifungal agent) resulted into a cocrystal with a dibasic acid. Valproic acid (mood stabilizing agent), which is liquid at room temperature, is available in the market as a sodium salt, which is highly moisture sensitive and dissolves in moisture soon. Our experiments with valproic acid resulted into stable crystalline salts with a few organic bases. Enrofloxacin, a well-known broad spectrum antibiotic, which also suffers from poor aqueous solubility, has resulted into a series of highly water soluble salts using solvent drop assisted grinding experiments [5]. Amoxapin, a tricyclic antidepressant, also suffers from poor solubility and dissolution rate. Our experiments have resulted into a few stable and highly water soluble salts of amoxapine [6]. Ofloxacin and Levofloxacin were also targeted for the formation of salts with pharmaceutically acceptable organic acids. Novel salts of these drugs were tested for their biological activity and based on enhancement in activity; salts of Levofloxacin were further tested for their activity in animal model as well. Our results indicated that the novel salts of Levofloxacin were more potent than the existing formulations. Significant results achieve in last 10 years on these drugs from our laboratory will be highlighted in the presentation with special emphasis on their synthesis, characterization, physical and biological (both in-vivo and in-vitro) property studies of novel salts developed in our laboratory.
Description:	Only IISER Mohali authors are available in the record.
URI:	https://scripts.iucr.org/cgi-bin/paper?S0108767321088206 https://doi.org/10.1107/s0108767321088206 (https://scripts.iucr.org/cgi-bin/paper?S0108767321088206 https://doi.org/10.1107/s0108767321088206)

Appears in Collections:	Research Articles (/jspui/handle/123456789/9)

Files in This Item:

File	Description	Size	Format	
Need To Add…Full Text_PDF..pdf (/jspui/bitstream/123456789/4326/1/Need%20To%20Add%e2%80%a6Full%20Text_PDF..pdf)	Only IISERM authors are available in the record.	15.36 kB	Adobe PDF	View/Open (/jspu

Show full item record (/jspui/handle/123456789/4326?mode=full)

(/jspui/handle/123456789/4326/statistics)