

Title	Toward simplified oral lipid-based drug delivery using mono-/di- glycerides as single component excipients
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1	Towards simplified oral lipid-based drug delivery using mono-/di-			
2	glycerides as single component excipients			
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9	Supporting information			
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- 27 The excipients used for the eight lipid-based drug delivery systems used in this study
- are listed in Table S 1.
- 29 Table S 1 Name and composition of lipid excipients used for lipid-based drug delivery
- 30 systems.

Excipient type	Excipient name	Composition		
Long chain triglycerides (LCT)	Sesame oil	Triglycerides of fatty acids: C20 (0.8%); C18:2 (40.4%); C18:1 (45.4%); C18 (4.3%) and C16 (9.1%) [35](Rowe et al., n.d.)		
Long chain mono-, di- glycerides (LCM) Maisine CC Monoglycerides (MG): 32-52%, Digl Triglycerides (TG) 5-20% of fatty act 35%); C18:0 (<6%); C16 (4-20%)*		Monoglycerides (MG): 32-52%, Diglycerides (DG) : 40-55%, Triglycerides (TG) 5-20% of fatty acids: C18:2 (>50%); C18:1 (10- 35%); C18:0 (<6%); C16 (4-20%)*		
Medium chain triglycerides (MCT)	Labrafac Lipophile WL 1349	Triglycerides of fatty acids: C6 (2%), C8 (50-80%); C10 (20-50%); C12 (<3%), C14 (1%)*		
Medium chain mono-, di-glycerides (MCM)	Capmul MCM C8 EP/NF	Monoglycerides (MG): 45-75%, Diglycerides (DG) 20-50%, Triglycerides (TG): <10% of fatty acids: C6 (<1%) C8 (>90%), C10 (<10%), C12 (<1%)*		
Surfactant (S)	Labrasol	Mixed polyoxyglycerides of fatty acids C6 (<2%); C8 (50-80%); C10 (20-50%); C12 (<3%); C14 (<1%)*		
*according to manufacturer certificate of analysis/technical data sheet				

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Precipitation times and XRD patterns of precipitate observed after dilution and
 dispersion testing of LBDDS containing celecoxib and cinnarizine are shown inTable S 2,

34 Figure S 1 and Figure S 2, respectively.

Table S 2 Time point when precipitation was observed for lipid-based drug delivery systems
after dilution and dispersion in FaSSIF at 37 °C.

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57	Time (h)	Celecoxib LBDDS	Cinnarizine LBDDS
38		LCM+MCT+S MCM+S	MCM+S MCM+LCT+S MCM+MCT+S
39	0.25	MCM+LCT+S MCM+MCT+S	
40	1 - 2	LCM+S LCM+LCT+S MCM	МСМ
41	4 - 24	LCM (pp at 4H)	

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43 Precipitate formed after dilution and dispersion of 85% saturated LBDDS was analysed
44 with XRPD and diffractograms for celecoxib and cinnarizine are shown in Figure S 1 and

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45 Figure S 2 respectively. Presence of low intensity peaks are a result of limited available solid
46 material. Absence of enough precipitate material after dispersion of celecoxib LCM system is
47 a consequence of lack of diffractogram in Figure S 1.



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- 49 Figure S 1 Overlay of XRD diffractograms for precipitate observed after dilution and
- 50 dispersion of celecoxib-loaded LBDDS in FaSSIF and crystalline celecoxib.
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53 Figure S 2 Overlay of XRD diffractograms for precipitate observed after dilution and

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⁵⁴ dispersion of cinnarizine-loaded LBDDS in FaSSIF and crystalline cinnarizine.

- 57 The area under the concentration-time curve of drug concentration in the aqueous phase
- 58 of the dispersion medium after dispersion of LBDDS in FaSSIF is presented in Table S 3.
- 59 Table S 3 Area under the concentration-time curve after *in vitro* testing of LBDDS dispersion
- 60 in FaSSIF and drug quantification in aqueous environment.
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	Celecoxib	Cinnarizine	JNJ-2A
LCM	366.4 ± 20.1	882 ± 129	1203.3 ± 37.6
МСМ	609 ± 331	83.8 ± 18.6	252.4 ± 38.9
LCM+S	943 ± 227	855 ± 111	3400 ± 379
MCM+S	101.0 ± 20.0	198.2 ± 33.0	1480 ± 134
LCM+LCT+S	1144.7 ± 60.4	947.2 ± 64.4	n.a.
MCM+MCT+S	1164 ± 209	1645 ± 230	1965 ± 292
LCM+MCT+S	1328.8 ± 32.3	1627 ± 103	n.a.
MCM+LCT+S	958.4 ± 94.7	745.1 ± 32.9	n.a.

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