

**Table 3.** Effect of rate modifying agents on the burst release from SPI hydrogel implants.

| Type of Additive     | Polymer/Solvent system                  | Drug                 | Amount of additive | Mean burst release (no additive) | Mean burst release (with additive) | Ref.                     |
|----------------------|---|----------------------|--------------------|----------------------------------|------------------------------------|--------------------------|
| Triacetin            | PLGA/NMP                                | Aspirin              | NA                 | 36.9%                            | 65%                                | Tang and Singh 2008      |
| PVP                  | PLGA/NMP                                | Chicken egg lysozyme | 3%                 | NA                               | 8 fold increase                    | Graham et al. 1999       |
| Ethyl benzoate       | PLGA/NMP                                | Leuprolide acetate   | 12.8%              | 14.50%                           | 5.53%                              | Astaneh et al. 2008      |
| PEG 400              | PLGA/NMP                                | Aspirin              | 20%                | 36.9%                            | 30%                                | Tang and Singh 2008      |
| Glycerol             | PLGA/NMP                                | Naltrexone HCl       | 1%<br>3%<br>5%     | 67%                              | 62%<br>61%<br>60%                  | Bakhshi et al. 2006      |
| Ethyl heptanoate     | PLGA/NMP                                | Naltrexone HCl       | 1%<br>3%<br>5%     | 67%                              | 62%<br>50%<br>44%                  | Bakhshi et al. 2006      |
| PEG 4000             | PLLA/NMP<br>PLLGA/NMP                   | Heparin              | 5%                 | 40%<br>20%                       | 5%<br>NA                           | Tan et al. 2004          |
| Glyceryl monosterate | PLGA/BB and BA                          | Risperidone          | 2%                 | 32.2%                            | 4.7%                               | Dong et al. 2011         |
| Steric Acid          | PLGA/BB and BA                          | Risperidone          | 2%                 | 32.2%                            | 23.4%                              | Dong et al. 2011         |
| Zinc complexation    | PLGA/NMP, triacetin, ethyl benzoate, BB | Human growth hormone | 30 mM              | ND                               | Reduction in all cases             | Brodbeck et al. 1999     |
| Pluronic L101        | PDLA/NMP                                | Lysozyme             | 5.4%               | 25%                              | 18%                                | DesNoyer and McHugh 2003 |
| Pluronic L121        | PDLA/NMP                                | Lysozyme             | 5.4%               | 25%                              | 10%                                | DesNoyer and McHugh 2003 |
| Dil                  | PLGA/NMP                                | Sodium fluorescein   | 4%                 | 28.8%                            | 6.9%                               | Solorio et al. 2010      |
| Water                | PLGA/NMP                                | Sodium fluorescein   | 10% of the solvent | 28.8%                            | 15.1%                              | Solorio et al. 2010      |

ND: No details, Dil: 1, 1'-dioctadecyl-3,3,3',3'-tetramethylindocarbocyanine perchlorate