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Supplementary Information

Effects of Drug Physicochemical Properties on In-Situ Forming Implant Polymer Degradation and Drug Release Kinetics

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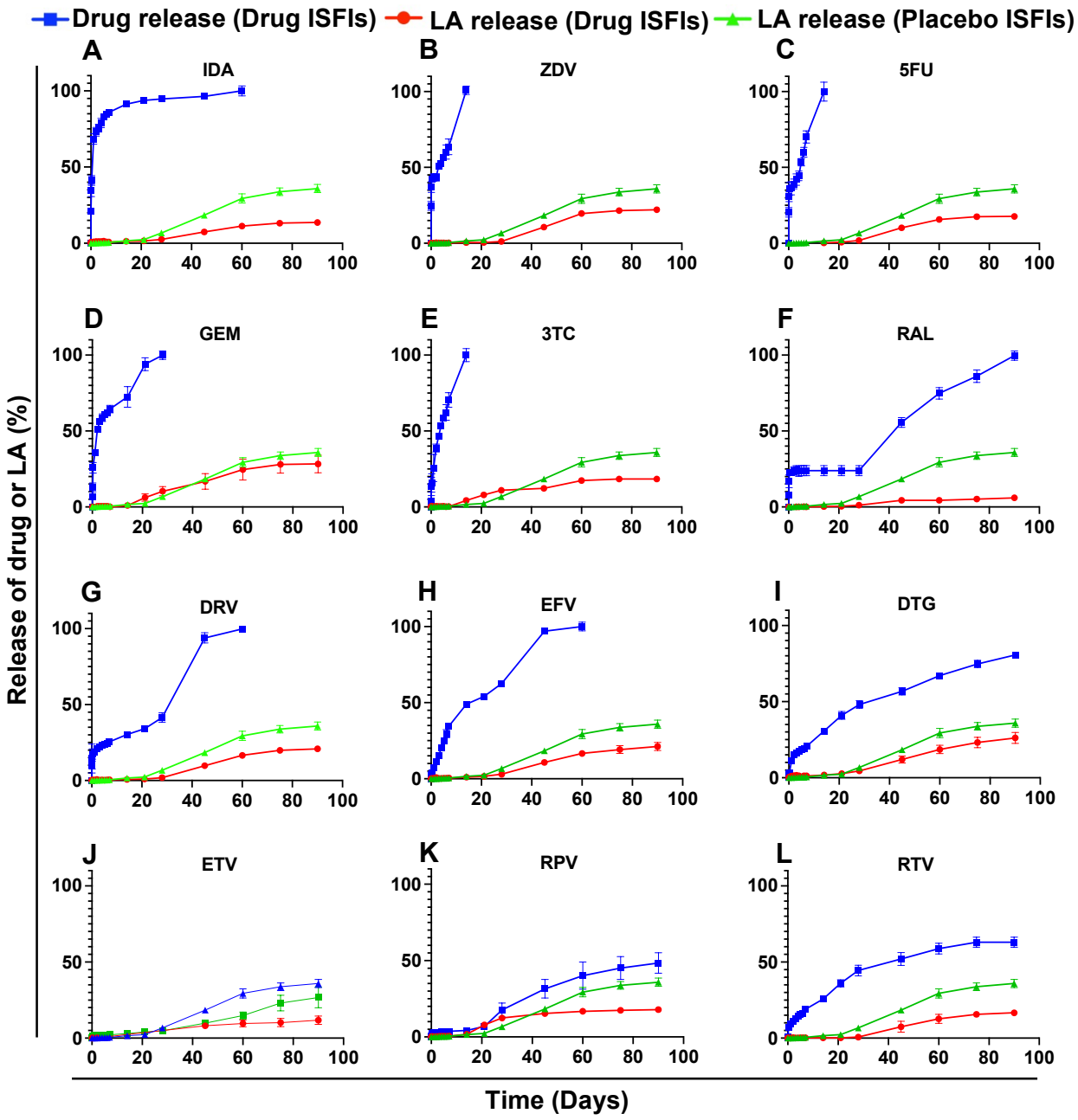
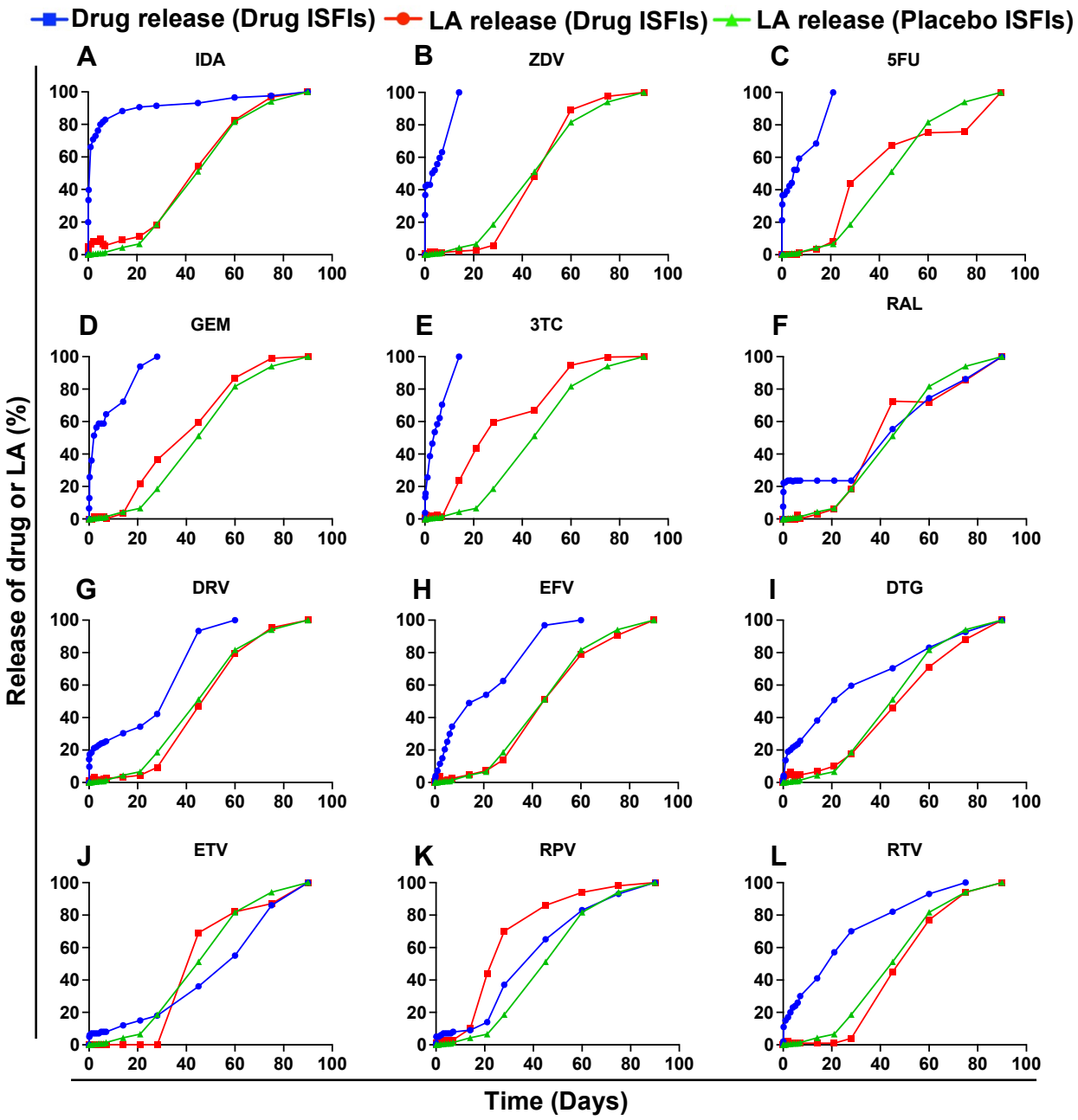
Supplementary Table S1. Summary of various ISFI formulations investigated to study the effects of drug physicochemical properties on drug release kinetics and polymer degradation over 90 days incubation in PBS at 37ºC. Drug concentration in ISFI formulations (mg/g) and in each depot (mg) injected into PBS was determined by HPLC analysis.

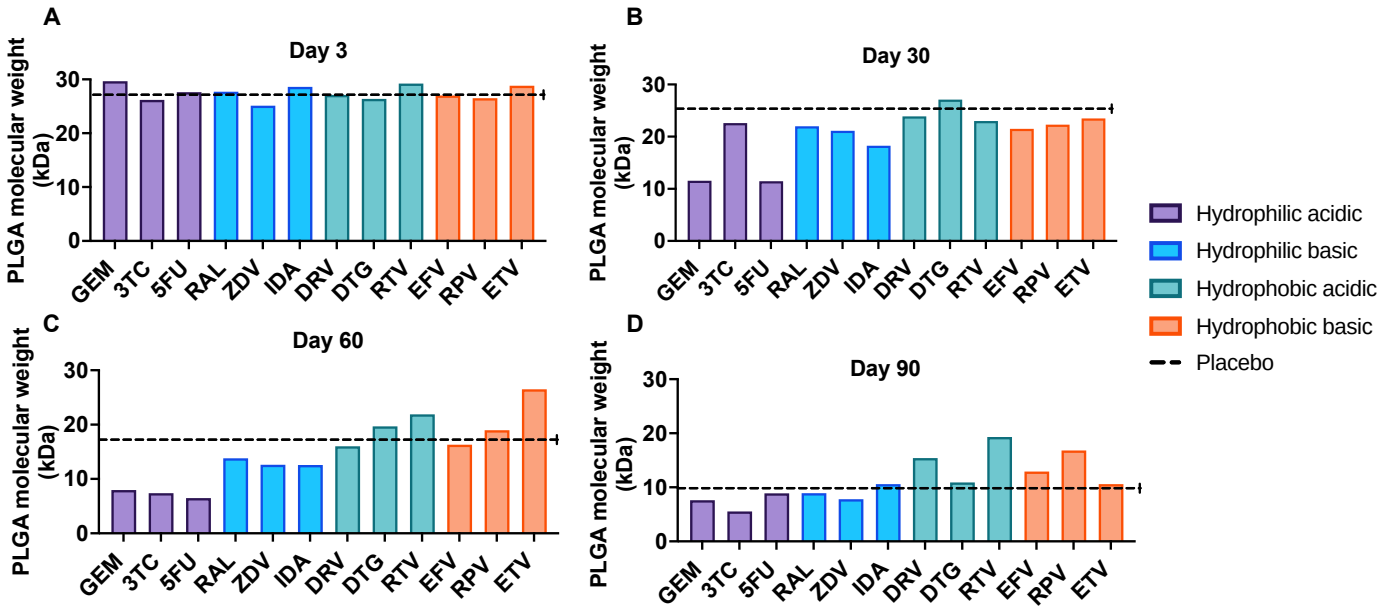
Drug	LogP	pKa	[drug] (mg/g)	Drug/depot (mg)
DRV	1.8	11.4	49.52 ± 2.78	1.28 ± 0.13
DTG	2.2	8.2	51.90 ± 5.1	1.21 ± 0.08
RTV	3.9	2.8	49.26 ± 3.71	1.51 ± 0.09
EFV	4.6	10.2	53.73 ± 3.96	1.72 ± 0.16
RPV	4.8	5.6	51.35 ± 3.04	1.73 ± 0.14
ETV	5.5	3.7	50.98 ± 1.87	1.60 ± 0.01
GEM	-1.4	3.4	50.10 ± 2.36	1.46 ± 0.04
3TC	-0.49	4.3	50.48 ± 3.18	1.57 ± 0.09
5FU	-0.89	8.02	51.77 ± 3.29	1.72 ± 0.13
RAL	-0.39	6.3	51.81 ± 2.79	1.61 ± 0.20
ZDV	0.05	9.7	53.44 ± 2.24	1.77 ± 0.15
IDA	0.2	9.5	51.20 ± 1.41	1.78 ± 0.08



Supplementary Figure S1: In vitro drug release kinetics and PLGA degradation quantified by HPLC and lactic acid assay respectively over 90 days. % Drug release (blue), lactic acid release from drug-loaded ISFIs (red), and lactic acid release from placebo ISFIs (green). A) IDA ISFI (50 mg/g); B) ZDV ISFI (50 mg/g); C) 5FU ISFI (50 mg/g); D) GEM ISFI (50 mg/g); E) 3TC ISFI (50 mg/g); F) RAL ISFI (50 mg/g); G) DRV ISFI (50 mg/g); H) EFV ISFI (50 mg/g); I) DTG ISFI (50 mg/g); J) ETV ISFI 50 (mg/g); K) RPV ISFI (50 mg/g); L) RTV ISFI (50 mg/g).



Supplementary Figure S2: In vitro drug release kinetics and PLGA degradation quantified by HPLC and lactic acid assay respectively over 90 days. Drug release normalized to % release at day 90 (blue), lactic acid release from drug-loaded ISFIs normalized to % release at day 90 (red), and lactic acid release from placebo ISFI normalized to % release at day 90 (green). A) IDA ISFI (50 mg/g); B) ZDV ISFI (50 mg/g); C) 5FU ISFI (50 mg/g); D) GEM ISFI (50 mg/g); E) 3TC ISFI (50 mg/g); F) RAL ISFI (50 mg/g); G) DRV ISFI (50 mg/g); H) EFV ISFI (50 mg/g); I) DTG ISFI (50 mg/g); J) ETV ISFI 50 (mg/g); K) RPV ISFI (50 mg/g); L) RTV ISFI (50 mg/g).



Supplementary Figure S3: Molecular weight of PLGA (kDa) as measured by GPC analysis for each drug at (A) day 3 (B) day 30 (C) day 60 (D) day 90.