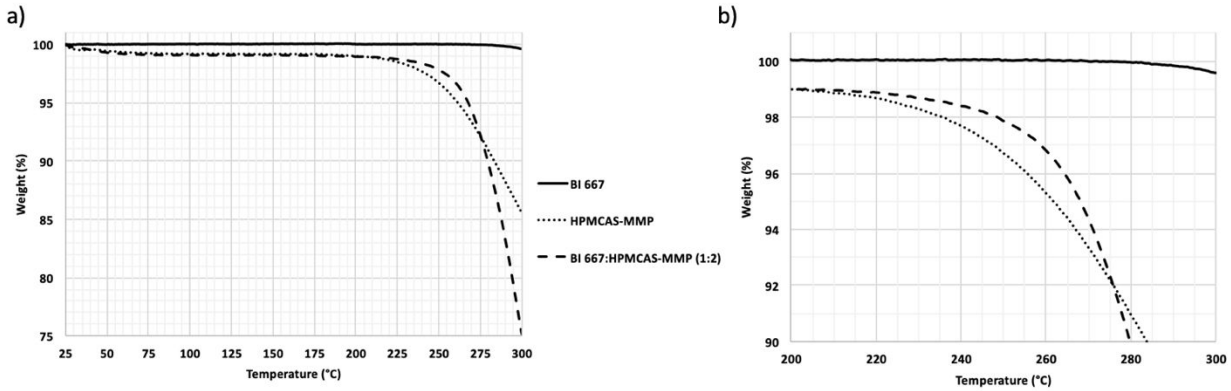
In addition to the main text of the manuscript, the authors found it important to include the thermal analysis characterization of BI 667. Both thermogravimetric analysis (TGA) and modulated differential scanning calorimetry (mDSC) were conducted to understand the thermal properties of BI 667 as native API and in the presence of HPMCAS-MMP after processing into amorphous solid dispersions (ASDs). The following supplementary figures are included to substantiate the claims laid out in the main body of text:

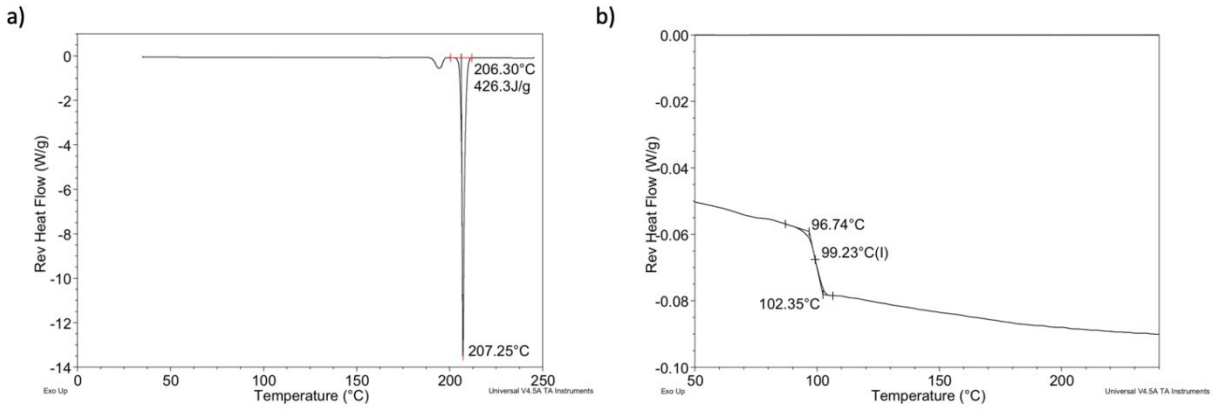
Supplementary Figure 1 is utilized to demonstrate the onset of degradation of BI 667, HPMCAS-MMP, and a physical mixture of BI 667:HPMCAS-MMP at the ratio at which the drug-polymer system was processed by KinetiSol® and spray drying.

Supplementary Figure 2 is utilized to demonstrate the melting point and glass transition temperature of BI 667 without the presence of HPMCAS-MMP. It is observed that a small amount of a secondary form of BI 667 is present in the native API (as shown in **Supplementary Figure 2a**).

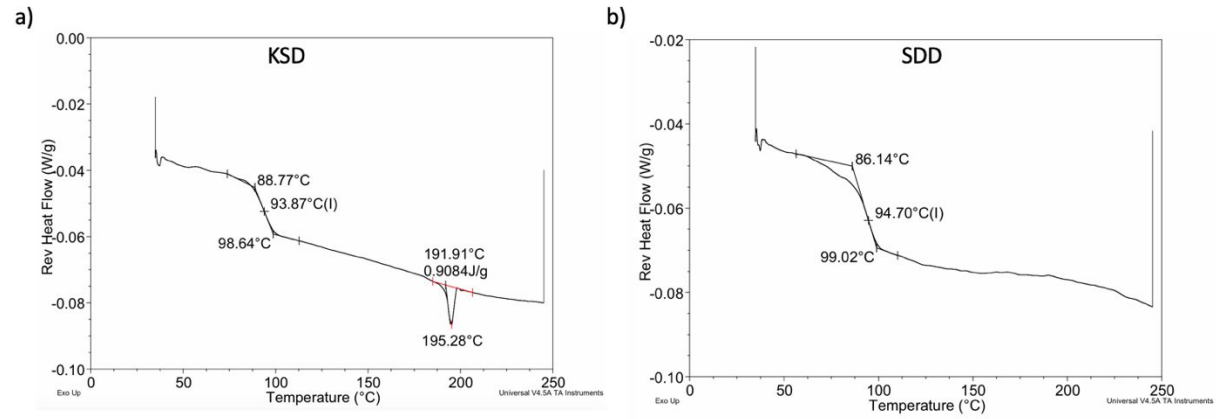
Supplementary Figure 3 is utilized to demonstrate the presence of a single glass transition temperature for both KinetiSol® and spray dried BI 667 ASDs. However, as discussed further in the main body of text, KSD material possesses a small endothermic event around the melting point of BI 667, while SDD material does not. It is not fully understood whether this small amount of crystallinity observed has any effect on overall performance of the KSD material *in vivo*, as the KSD material significantly outperformed SDD material of an identical composition.



Supplementary Figure 1: TGA profiles of BI 667, HPMCAS-MMP, and a BI 667:HPMCAS-MMP (1:2) physical mixture, where a) represents the entire TGA profiles from 25-300°C and b) represents a snapshot of the TGA profiles from 200-300°C to highlight the onset of degradation (T_{deg})



Supplementary Figure 2: mDSC thermograms showing the observed a) melt endotherm (T_m) of native BI 667 and b) glass transition temperature (T_g) of melt-quenched BI 667. In Supplementary Figure 1a, the brief endotherm preceding the major endotherm is assumed to be the presence of a small amount of a secondary form of BI 667.



Supplementary Figure 3: mDSC thermograms of a) KSD material and b) SDD material to demonstrate presence of a single T_g for both processed materials. Additionally, KSD material contains a small melt endotherm, which may be caused by the broad exothermal event (suggesting recrystallization) between 170-180°C.