This dataset is composed of several models used to estimate the fluid flow field occurring in the sarcomere during muscle contraction. All of these models were created in COMSOL using a creeping (Stokes) flow interface where inertial terms are neglected.

There are several series of models: those that vary the sarcomere’s length while maintaining a constant inter-filament (D10) spacing, those that vary sarcomere length and the spacing between the filaments to approximate a constant lattice volume, and finally, a single model that increases the thin to thick filament ratio. These changes are denoted in the file names (packing ratio: PR, constant interfilament spacing: ConstantD10 and constant volume: ConstantVolume), and the length of the sarcomere for each model is included in the filename (1010-1610 nm).

A full account of the boundary conditions and dimensions of these models are included in the methods section of the accompanying paper.