* We’ve collected AP and VC iPSC-CM data using perforated patch-clamp technique. The VC data was optimized to collect rich experimental data that would improve model fits (figures 1-2 – move to after model effects).
* The observed dynamics are impacted by patch-clamp experimental artifacts that were hard to minimize due to low seal resistances (caused by high temp) and high access resistances (caused by perforated patch-clamp)
* While experimental compensations were attempted, they are imperfect/unreliable (will these artifacts be in the same figure at the front, or should I go leak-sim/AP-exp, *then* access resistance/VC-exp)
  + Rm, when measured at -80 mV is often used as a measure of leak resistance. This is a poor estimate of leak in these cells, as they have a large amount of funny current. Additionally, these Rm values can change over the course of an experiment, so you cannot count on the value measured before getting access.
  + Series resistance affects the shape of current traces. While compensation makes the cells produce traces that are more true to underlying kinetics, it’s still imperfect and cannot be 100% compensated.
* Leak current has a different effect on AP morphology in the Kernik/Paci models.
* These artifacts do not make our fits perfect, because the models are sloppy! By adjusting conductances alone, however, they can help us interpret our results.

Eventually, I want to say:

* leak current should be included in AP models.
* Series resistance artifact should be included when fitting/comparing VC data (Han).

1. Han L, Li Y, Tchao J, Kaplan AD, Lin B, Li Y, Mich-Basso J, Lis A, Hassan N, London B, Bett GC, Tobita K, Rasmusson RL, Yang L. Study familial hypertrophic cardiomyopathy using patient-specific induced pluripotent stem cells. Cardiovasc Res. 2014 Nov 1;104(2):258-69. doi: 10.1093/cvr/cvu205. Epub 2014 Sep 10. PMID: 25209314; PMCID: PMC4217687.