Dear Doctor Sabin,

As you might remember, a mass vaccination program was started in Belgium in March 1963 using Sabin oral poliovaccine in syrup form. It has been estimated that about 60% of children from 3 months to 15 years were vaccinated, and about 35 to 40% of adults up to 40 years old.

Before any type of vaccination, polio incidence was about 5 to 10 per 100,000 in our country. After large administration of killed poliovaccine to about 75% of children between 6 months and 15 years, in 1958, polio incidence fell to 1.4 to 3 per 100,000. Since introduction of oral live poliovaccine in March 1963, polio incidence has fallen to 0.2 per 100,000, which is the lowest incidence ever recorded in our country. I thought that these data, although only a confirmation of many other data, might interest you.

Now, I have another problem about poliovaccine. Since the beginning of our work with live poliovaccine, all titrations have been performed on monkey kidney cells using the plaque technique recommended by you. Since several months we have performed several titrations, many times in compared experiments, using either HeLa cells or MK cells as monolayers for plaque test. A first observation is that, whereas plaque size is uniformly the same in MK cells, plaque size in HeLa cells is different for the three attenuated strains. Type I gives normal size plaques, Type II gives somewhat smaller plaques and Type III gives very small plaques (see pictures). We have not yet found an explanation for this phenomenon. But some of these experiments have been done using our vaccine preparation, others have been done using your reference strains or the NIH reference strains, without any correlation with neurovirulence testing. A second point is that the titer obtained in HeLa cells is regularly about 0.3 log higher than in
MK cells, except for type 3. This reminded me of the high titers obtained in your laboratory using Hep2 cells, also a continuous cell line, on plaque counts, and of your observation of a lesser sensitivity of these cells to type 3 strain.

Now, for practical purposes, I would like to know if you would agree that a virus concentration obtained with HeLa plaque count could be regarded as the real titer of a vaccine preparation, and that the lower titer obtained in monkey kidney cells only reflects a lesser sensitivity of these cells to virus present in the inoculum. In the affirmative, I would propose to adopt the HeLa plaque count for routine titrations of vaccine.

With kindest personal regards,

Yours sincerely,

A. Prinzie, M.D.