Recent achievement of radiometallic labeled monoclonal antibodies is a good example of the approach. On the other hand, considerations as for the use of I-123 or of those positron RI depend on the physical properties or if the radioliodination is recalled, on the achievement of appropriate synthetic method. Concurrently, as for the labeling with single photon radiometalic nuclides, research on the synthesis of various ligand is now under progress.

In the coming future of radiopharmaceuticals, the character of each labeled compound will play a determining factor. Thus, as for the positron RI, the great possibility and diversification of chemical structures and as for the radiometallic nuclides its ready availability for routine diagnosis will constitute decisive arguments; most probably I-123 holding an intermediate position may undergo a rising progress. However, instead of being satisfy with the interesting kinetic data gathered with the positron labeled compound, more meaningful research centered on its use as diagnostic agent should be carried out. Moreover, those data can be used with good advantages for building up new radiopharmaceuticals, either of I-123 or radiometallic nuclides of higher availability for routine clinical diagnosis. Thus, a concurrent effort to correlate those results with the easy available radionuclides, I-123 or radiometallic nuclides are desirable.

\[
dC_i/dt = k_1C_i - k_2C_i - k_3C_i + \mu C_i \tag{1}
\]

where \(C_i\) is concentration of tracer in the compartment \(i\), \(k_i\) is rate constant between the compartments, and \(\mu\) is physical decay coefficient. This differential equation describes model, typically used in blood flow measurement. If tracer is diffusible, the solution of Equation (1) will be a well known Kety-Schmidt equation. If tracer is microsphere, flow is given by a microsphere model. Secondly three compartments are considered. Similar differential equations are described between the compartments,

\[
dC_i/dt = k_1C_i - k_2C_i - k_3C_i + k_4C_i \tag{2}
\]

where \(C_i\), \(C_2\) and \(C_3\) are decay corrected concentration of the tracer or its metabolite. In general, if \(k_i = 0\), the solution is a well known Sokoloff model. In case that \(k_i\) is non-zero, Huang model is applied. This model has been widely adapted in various tracer analysis in the positron emission tomography.

In case of tumor, however, the hypothesis that requires instantaneous equilibrium in Equation (1) or (2), is not always correct. Then, a finite diffusion model which considers a diffusion speed from the capillary into the tissue, has been proposed recently.