

SUMMARY

1. Cytosol retinol binding protein was detected only in liver, lung and kidney of 8 month old vitamin A deficient rats which had been in vivo labelled with $15\text{ }^3\text{H}$ -retinol and the concentration of retinol (nmole/g tissue) bound to cRBP in the decreasing order was the following; kidney, liver and lung.
2. The levels of radioactivity in liver, lung, kidney, heart, muscle, testis, intestine and red blood cell were analysed 24 hours after the rats were given $15\text{ }^3\text{H}$ -retinol. The levels of radioactivity was high in liver and lung ($1.34 - 6.16 \times 10^{-6}$ cpm/g tis) and one to two order of magnitude lower in kidney, heart, muscle, testis, intestine and brain. Red blood cell contained no radioactivity.
3. Extraction of radioactivity by chloroform-methanol was also investigated. The percentage of extractable radioactivity were varied; in liver, lung, kidney, intestine and heart were in the range 45-89 % and those in testis, muscle and brain were about 20 %. Fractionation of these extractable radioactivity by thin layer chromatography on silica gel G to quantitate the levels of retinol and retinyl esters revealed that retinol concentration was high in liver ($0.77\text{ }\mu\text{g/g}$ tissue) and kidney ($0.29\text{ }\mu\text{g/g}$ tissue) and lower in others especially in heart, testis, muscle and brain ($0.01-0.03\text{ }\mu\text{g/g}$ tissue). Retinyl esters was found in all tissues.

4. The distribution of radioactivity between pellet and cytosol fraction were determined. Most of radioactivity exist in pellet fraction of liver and lung (75-91 %). The other tissues contained most of radioactivity in the cytosol (52-76 %).
5. The percentage of extractable radioactivity in pellet and cytosol fractions extracted by chloroform-methanol mixture of various tissues differed. Most of radioactivity in pellet fraction in liver and lung were extractable. Low level of radioactivity in cytosol fraction of heart, testis, muscle and brain were extracted (about 10 %).
6. Upon fractionation of extractable radioactivity in both fractions revealed that every tissue contained retinol and retinyl esters. Retinol concentration in cytosol was highest in kidney (0.136 $\mu\text{g/g}$ tissue) followed by liver (0.087 $\mu\text{g/g}$ tissue) and lung (0.069 $\mu\text{g/g}$ tissue), but in pellet was in the following decreasing order of liver, lung and kidney (0.506, 0.290, 0.151 $\mu\text{g/g}$ tissue respectively). Retinyl esters concentration in pellet fraction of these 3 tissues was higher than in cytosol fraction. In other tissues the level of retinol appeared to be equally distributed in both fractions.
7. In conclusion, cRBP in liver, lung and kidney of 8 month old vitamin A deficient rat can be labelled in vivo with $15\text{ }^3\text{H}$ -retinol. In other tissues although significant amount of

radioactivity was incorporated, cRBP can not be detected. The radioactivity distributed in both particulate and soluble fractions of tissues and exist as retinol, retinyl esters and polar compounds. cRBP probably does not exist in these tissues under this experimental conditions.