



Background

^{99m}Tc-MAA (Pulmocis®) :

- compounded radiopharmaceutical indicated in lung scintigraphy.
- can be used in infants and children with dose adjustments made based on weight.
- European Association of Nuclear Medicine (EANM) recommendations : to reduce the number of administered particles depending on age in order to embolize no more than 0.1% of the total lung capillary vessels.

→ Therefore, removing an amount of particles before labelling it with ^{99m}Tc is needed.

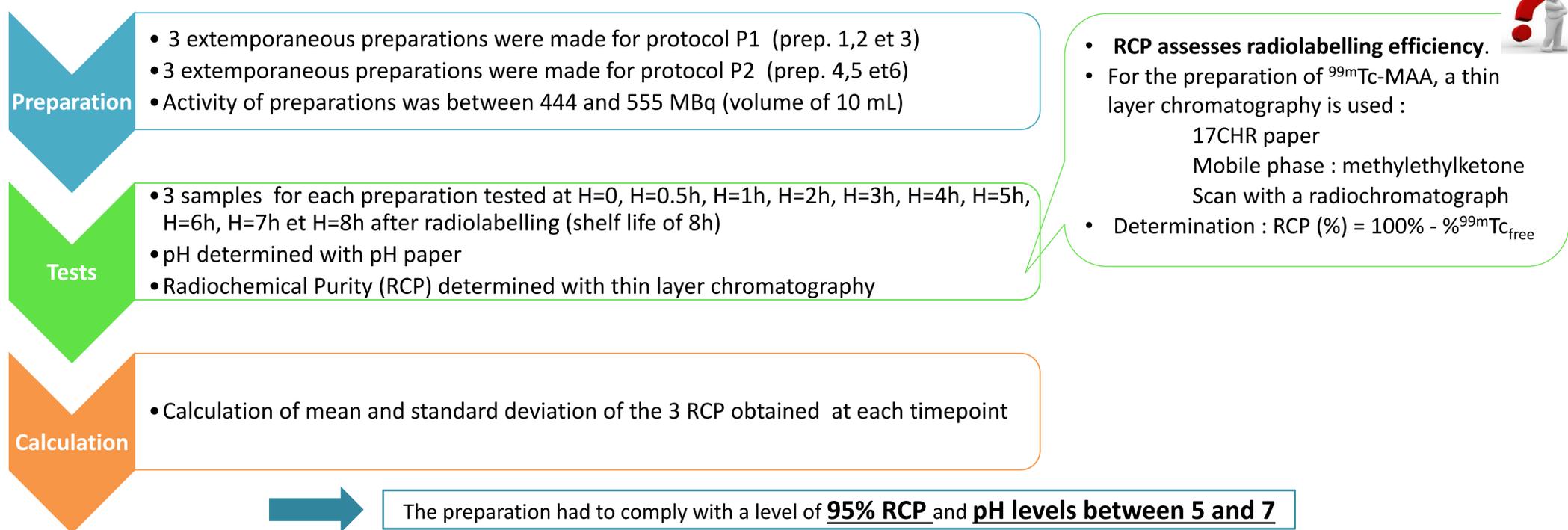
We use two different protocols: half of MAA is removed for infants and children older than 1 month (P1) and four fifth for infants younger than a month (P2). The rest of MAA is then labelled with a sodium ^{99m}perchnetate solution,

Objectives

This additional step in compounding the ^{99m}Tc-MAA is not included in the manufacturer's instructions.

Our goal is to validate the preparation protocols for pediatric use by controlling the quality of the preparations.

Methods



Results

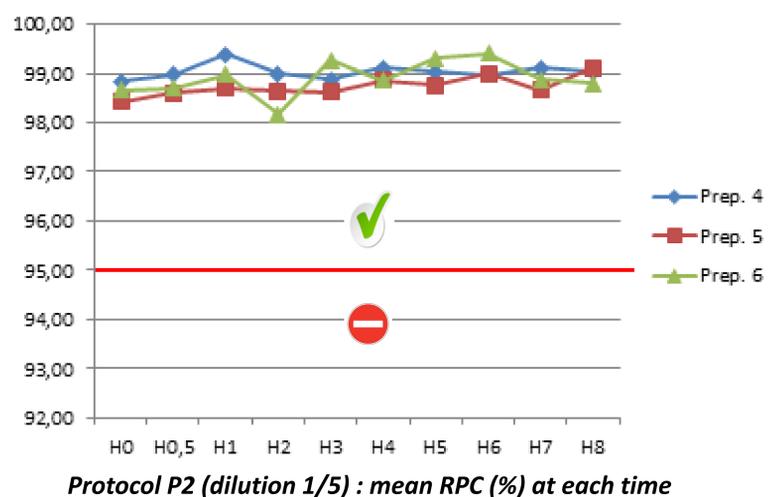
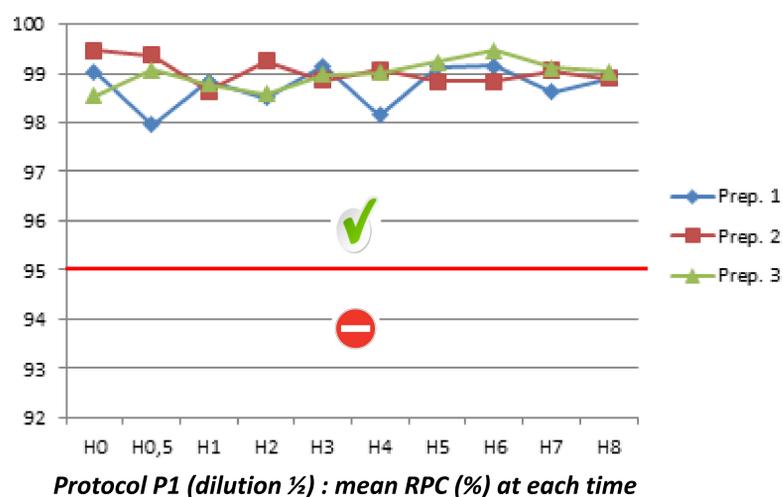
180 samples were analyzed in total:

pH level is between 5 and 7

Mean RPC for all samples was :

- P1 : 98.75% ± 0.10 et 99.15% ± 0.32
- P2 : 98.60% ± 0.41 et 99.12% ± 0.24

100% of samples conform to requirements



Discussion

This study validated our ^{99m}Tc-MAA preparation protocols for pediatric use.

The protocols do not follow manufacturer's instructions but do fulfill EANM guidelines.

For some teams, however, questions remain about the need to adapt the number of injected MAA for children after the age of 2 as studies have shown that lung maturation ends between the age of 2 and 8.

Conclusion

Removing a portion of MAA before adding ^{99m}Tc does not alter ^{99m}Tc-MAA labelling efficiency. These protocols can be used to put in practice current EANM guidelines.