Supplementary Information

Protection from contamination by ^{211}At, an enigmatic but promising alpha emitter

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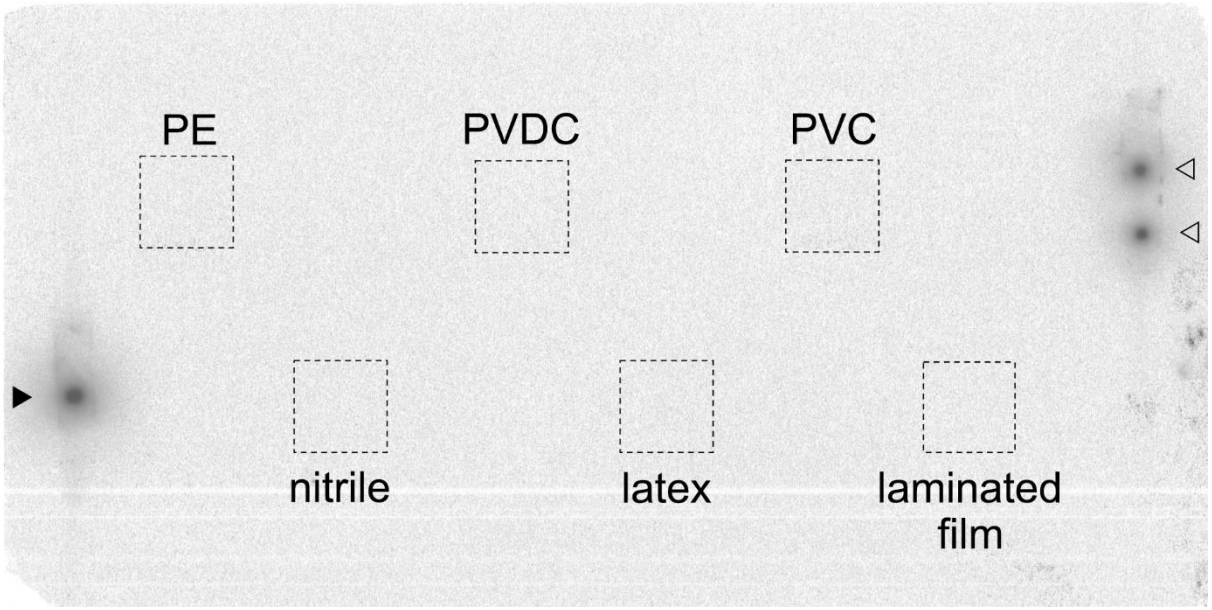
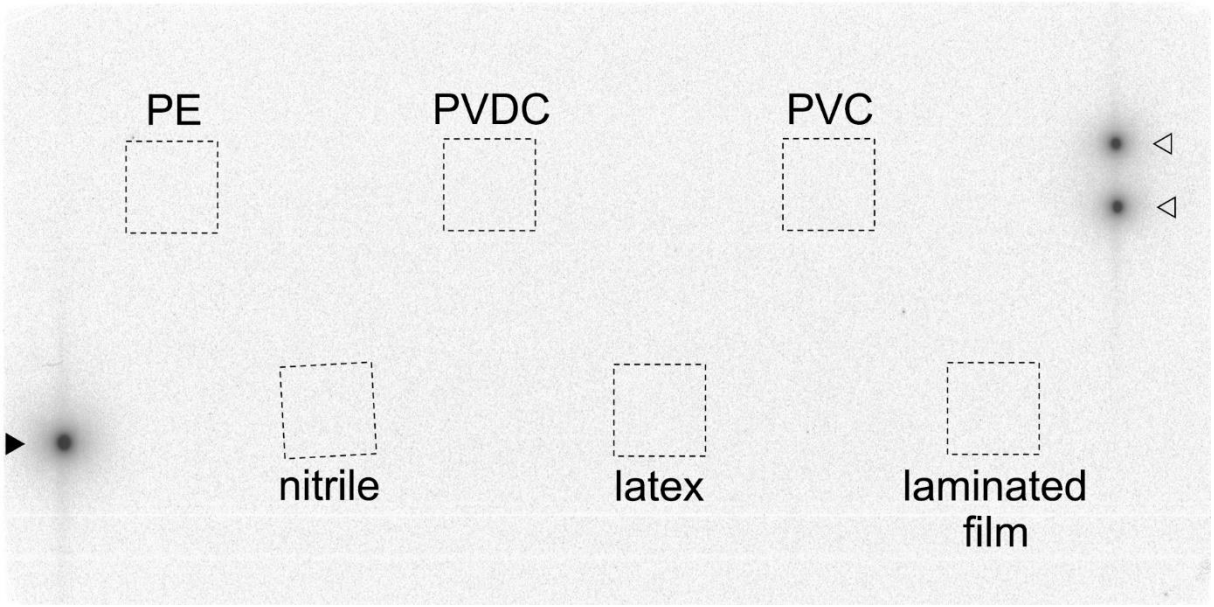
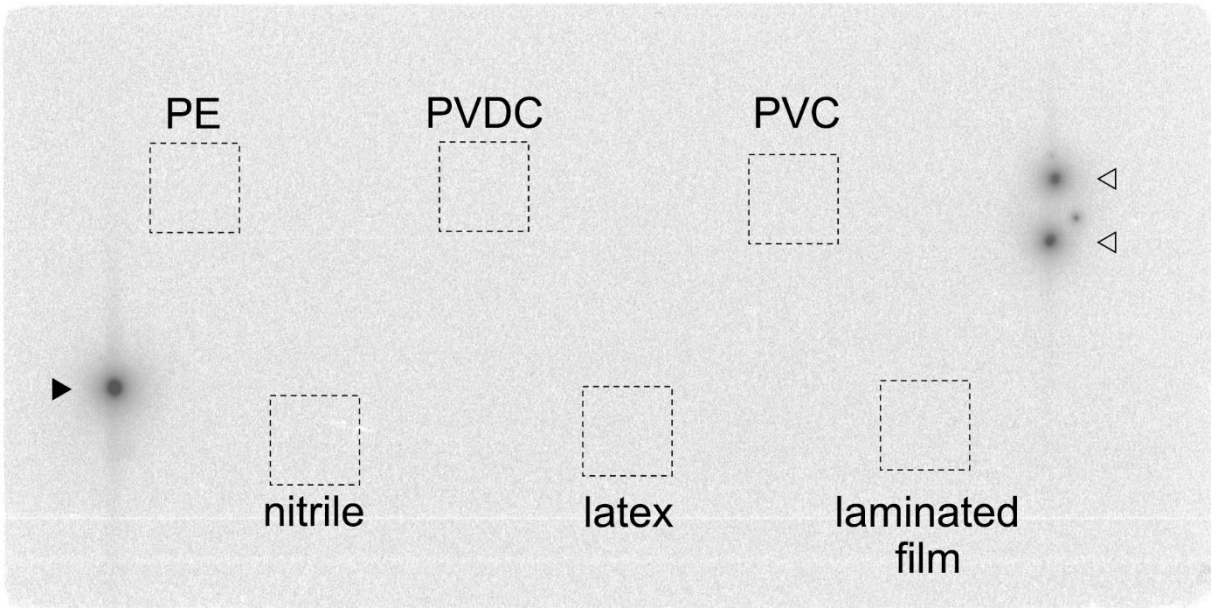
Supplementary Figure 1: The permeability of the [^{225}Ac]Ac(NO_3)$_3$ solution through films and rubber. The autoradiogram obtained after 15-h exposure to imaging plates. ^{125}I drops sealed by polyvinylidene chloride film were also put as markers. The arrowhead indicates a ^{125}I drop with 0.1 kBq and the open arrowheads indicate ^{125}I drops with 0.05 kBq. PE: polyethylene, PVDC: polyvinylidene chloride, PVC: polyvinyl chloride.



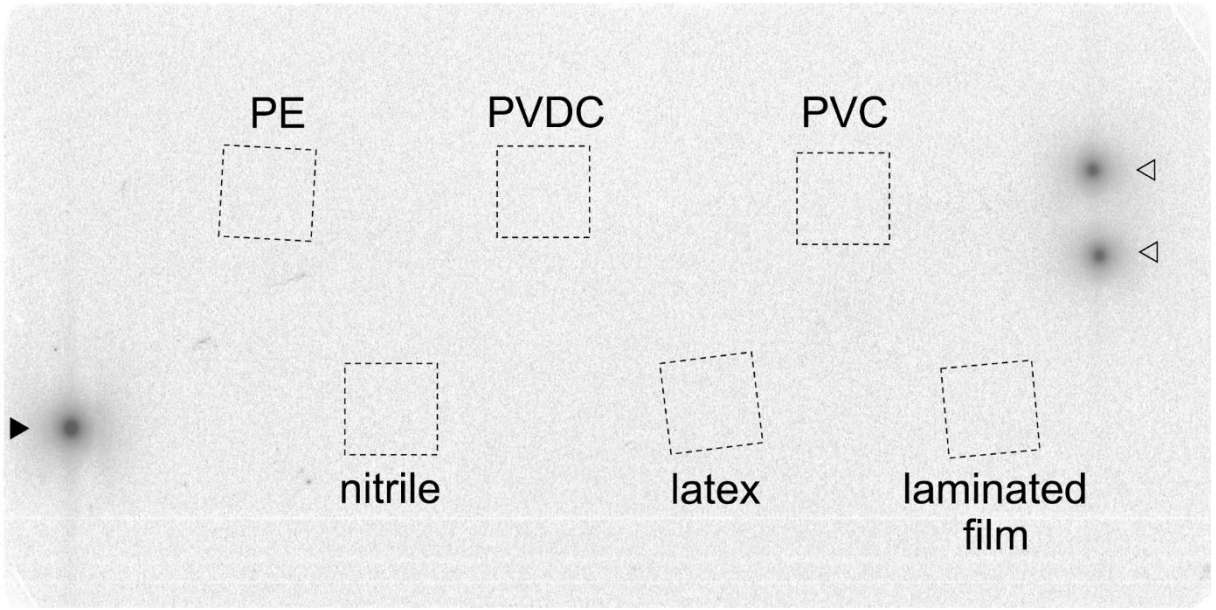
Supplementary Figure 2: The permeability of the [^{111}In]$InCl_3$ solution through films and rubber. The autoradiogram obtained after 15-h exposure to imaging plates.



Supplementary Figure 3: The permeability of the [^{201}Tl]TlCl solution through films and rubber. The autoradiogram obtained after 15-h exposure to imaging plates.



Supplementary figure 4: The permeability of [^{99m}Tc]$NaTcO_4$ through films and rubber. The autoradiogram obtained after 15-h exposure to imaging plates.



Supplementary Table: The radioactivity of pieces of filter paper counted by a gamma counter. The counts after attenuation correction are shown.

	$[^{211}At]NaAt$	$[^{225}Ac]Ac(NO_3)_3$	$[^{125}I]NaI$	$[^{111}In]InCl_3$	$[^{201}Tl]TlCl$	$[^{99m}Tc]NaTcO_4$
Polyvinyl	(5.15 ± 1.84) x 10^4	(1.14 ± 0.12) x 10^2	(3.96 ± 0.66) x 10^4	(5.33 ± 0.81) x 10^1	(2.40 ± 0.41) x 10^1	(1.83 ± 0.41) x 10^2
Polyethylene	(1.91 ± 0.13) x 10^5	(1.17 ± 0.12) x 10^2	(2.75 ± 0.52) x 10^4	(5.23 ± 1.04) x 10^1	(2.85 ± 0.60) x 10^1	(1.58 ± 0.40) x 10^2
Polyvinylidene	(2.80 ± 0.66) x 10^2	(1.16 ± 0.11) x 10^2	(3.19 ± 0.57) x 10^1	(4.78 ± 0.58) x 10^1	(3.00 ± 0.64) x 10^1	(1.66 ± 0.26) x 10^2
Latex	(2.41 ± 0.53) x 10^3	(1.16 ± 0.11) x 10^2	(2.12 ± 0.48) x 10^3	(5.16 ± 0.79) x 10^1	(2.68 ± 0.53) x 10^1	(1.64 ± 0.37) x 10^2
Nitrile	(3.53 ± 0.70) x 10^2	(1.14 ± 0.11) x 10^2	(3.50 ± 0.74) x 10^1	(5.24 ± 0.98) x 10^1	(2.10 ± 0.31) x 10^1	(1.41 ± 0.49) x 10^2
Laminated film	(2.57 ± 0.37) x 10^2	(1.09 ± 0.070) x 10^2	(2.23 ± 0.50) x 10^1	(5.25 ± 1.17) x 10^1	(2.10 ± 0.25) x 10^1	(2.30 ± 0.56) x 10^2

(counts per minute)