

# Human In Vivo Metabolism and Elimination Behavior of Micro-dosed Selective Androgen Receptor Modulator RAD140 for Doping Control Purposes

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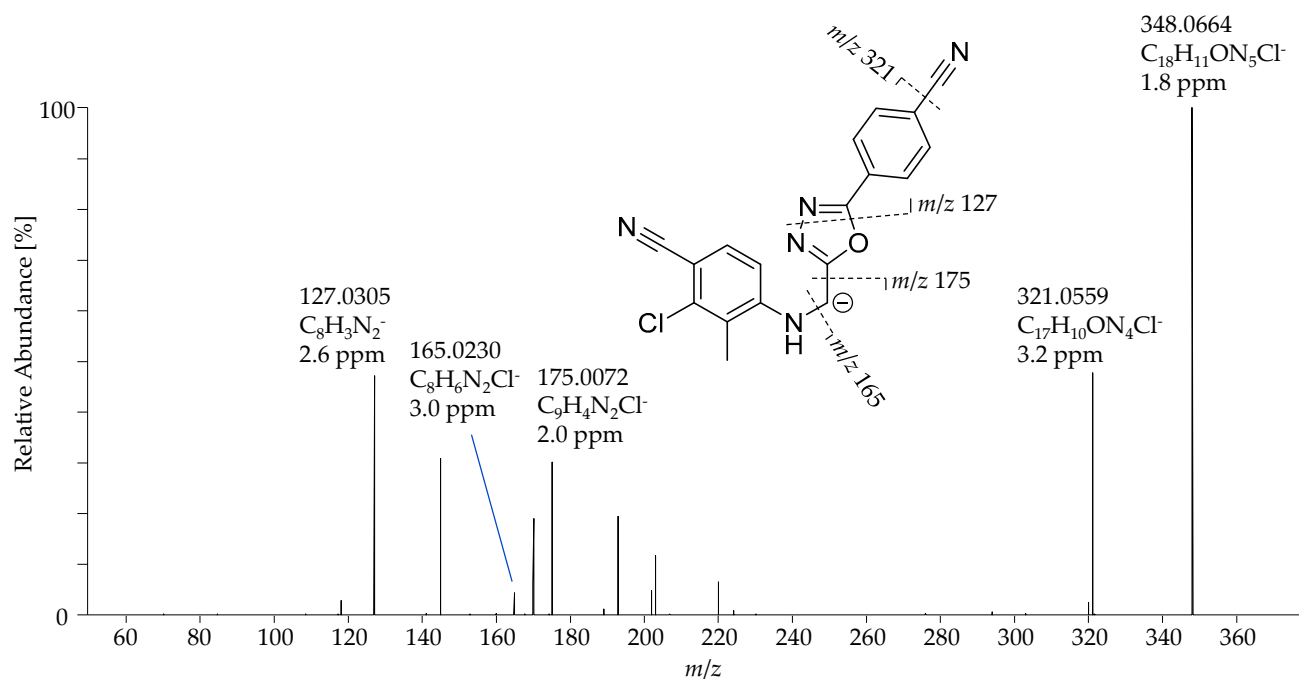
<sup>2</sup> European Monitoring Center for Emerging Doping Agents (EuMoCEDA), 50933 Cologne, Germany

## Supplementary Material

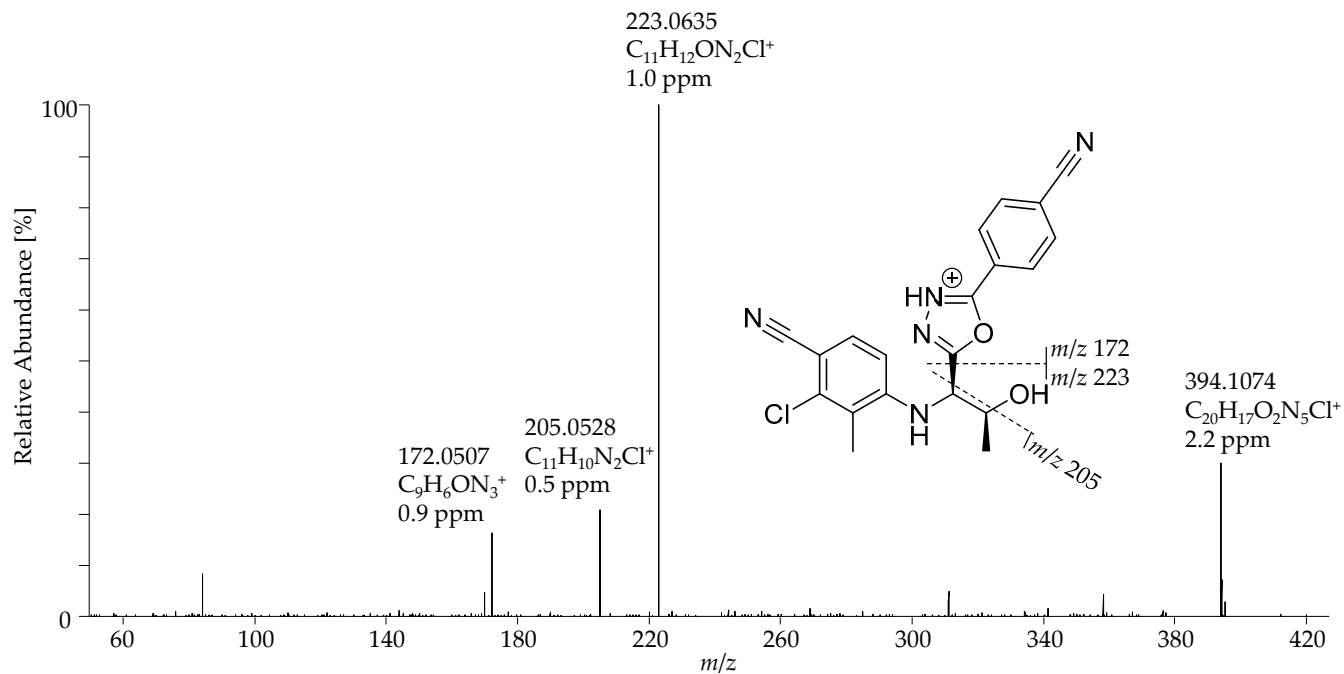
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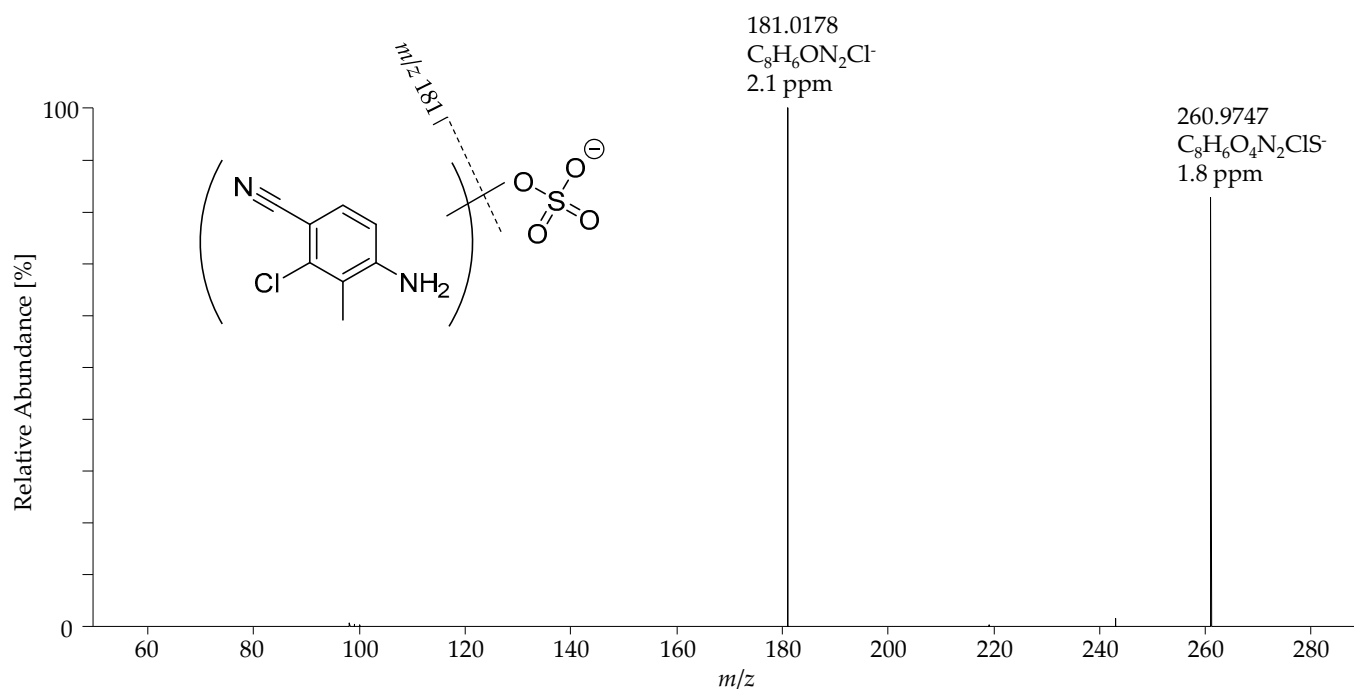
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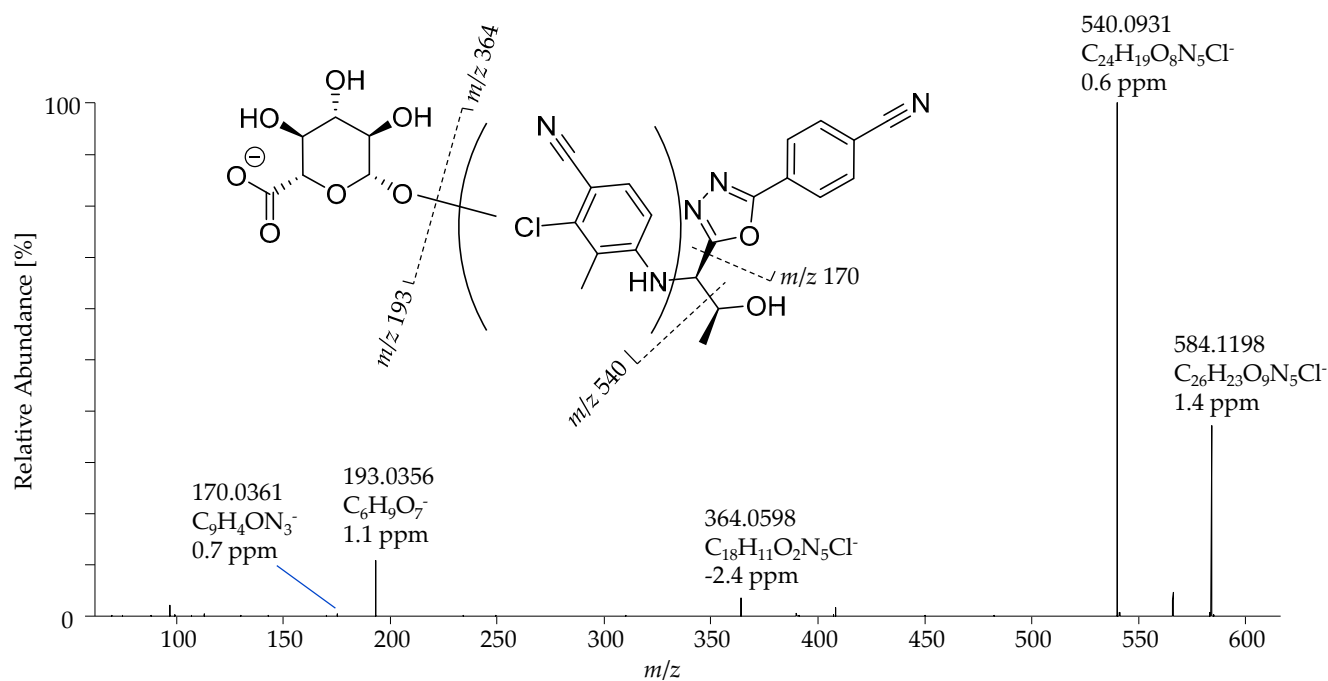
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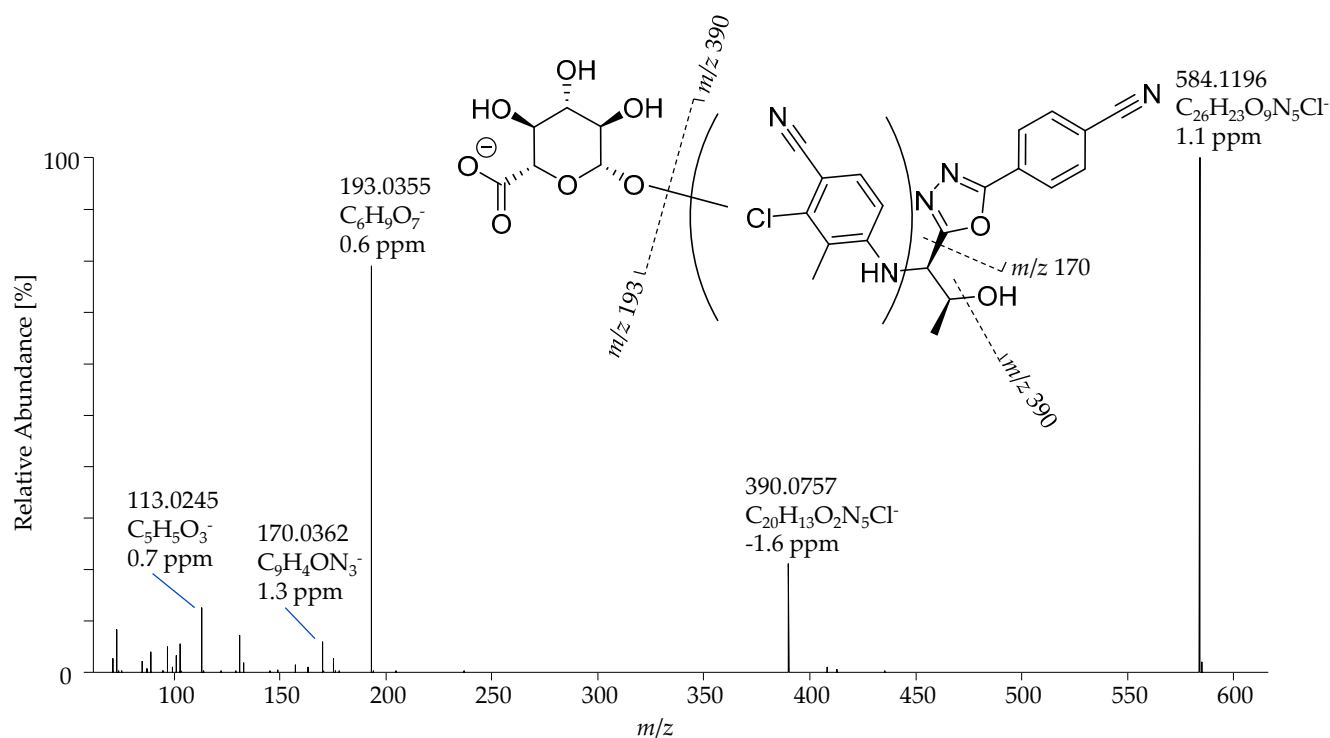
**Figure S2.** HRMS/MS spectrum and structure of RAD140 (positive), sample: RDS, urine sample was diluted 1:10 with water and prepared by hydrolysis and LLE. NCE 20%, isolation window  $m/z$  1.



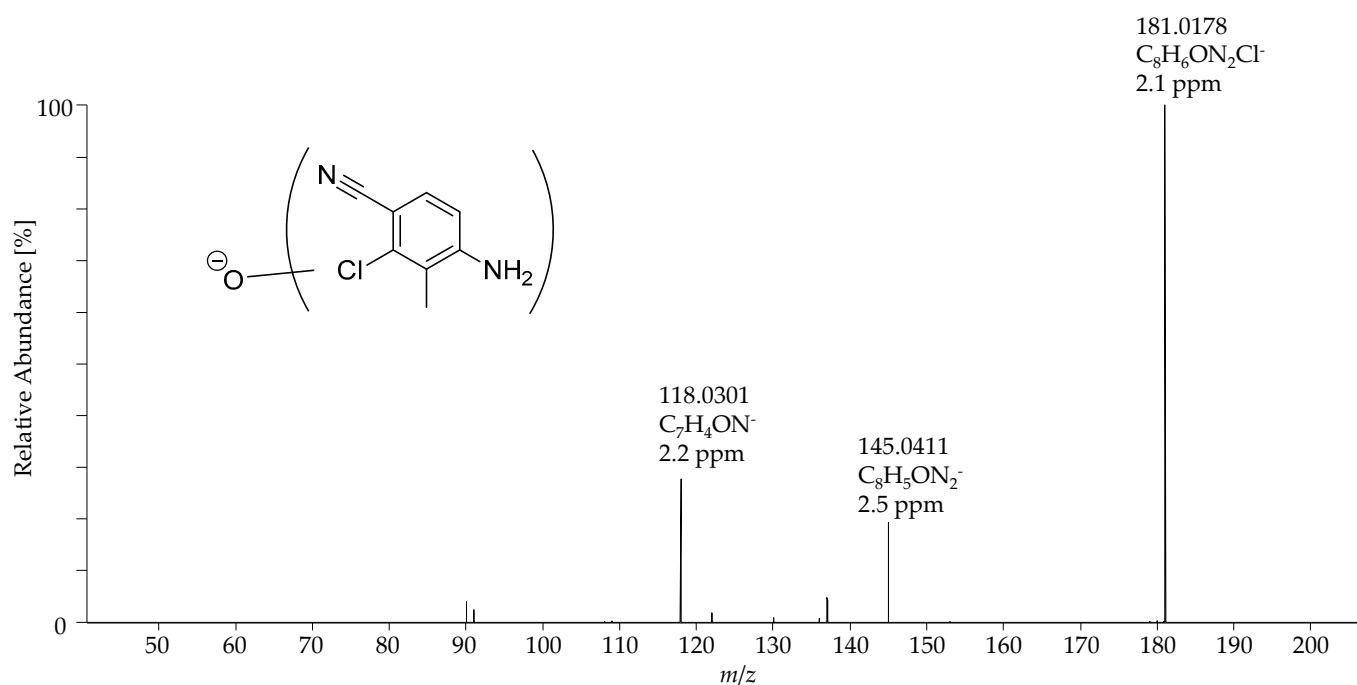
**Figure S3.** HRMS/MS spectrum and structure of M1, sample: RDS, urine sample was injected directly. NCE 25%, isolation window  $m/z$  1.



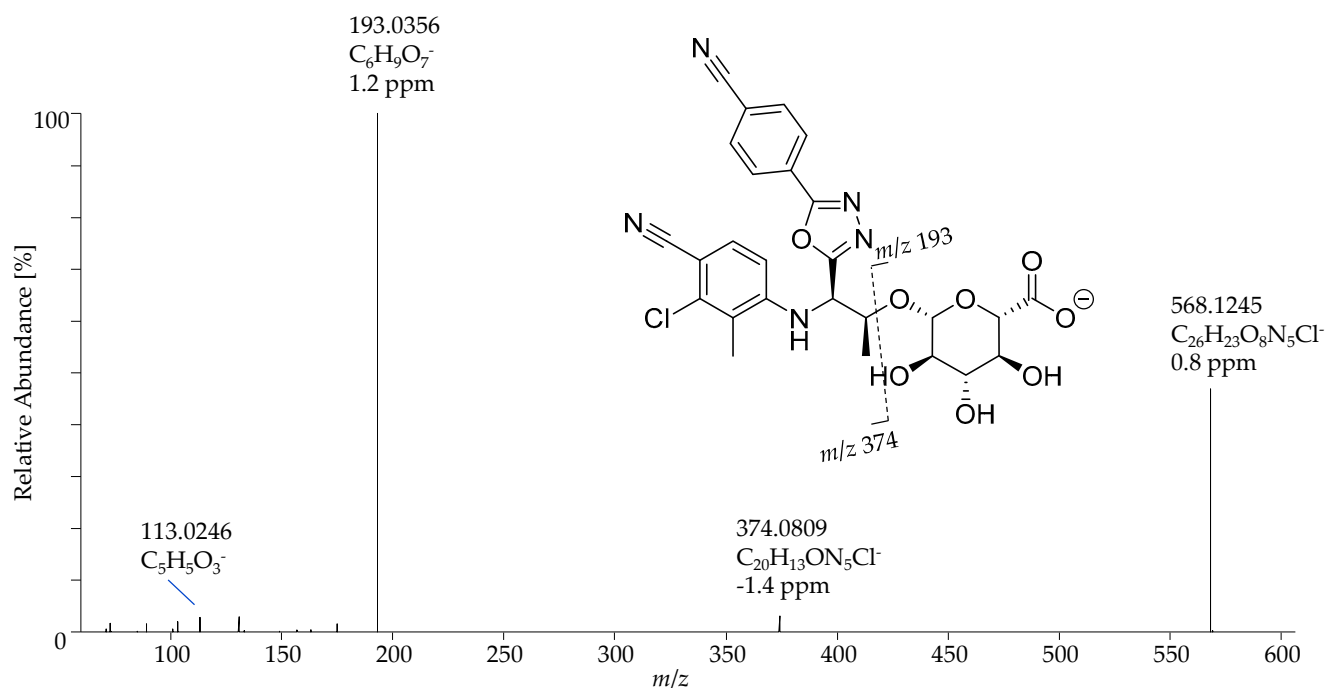
**Figure S4.** HRMS/MS spectrum and postulated structure of M2a, sample: RDS, urine sample was injected directly. NCE 15%, isolation window  $m/z$  1.



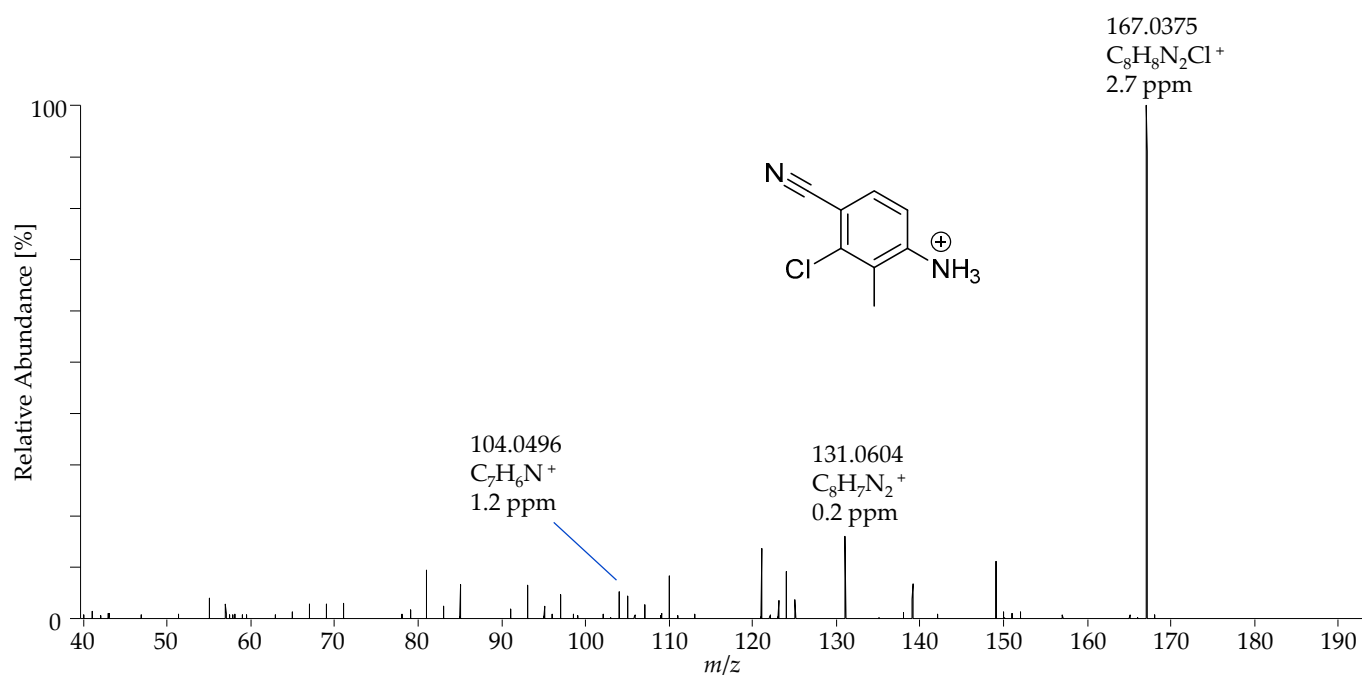
**Figure S5.** HRMS/MS spectrum and postulated structure of M2b, sample: RDS, urine sample was injected directly. NCE 20%, isolation window  $m/z$  1.



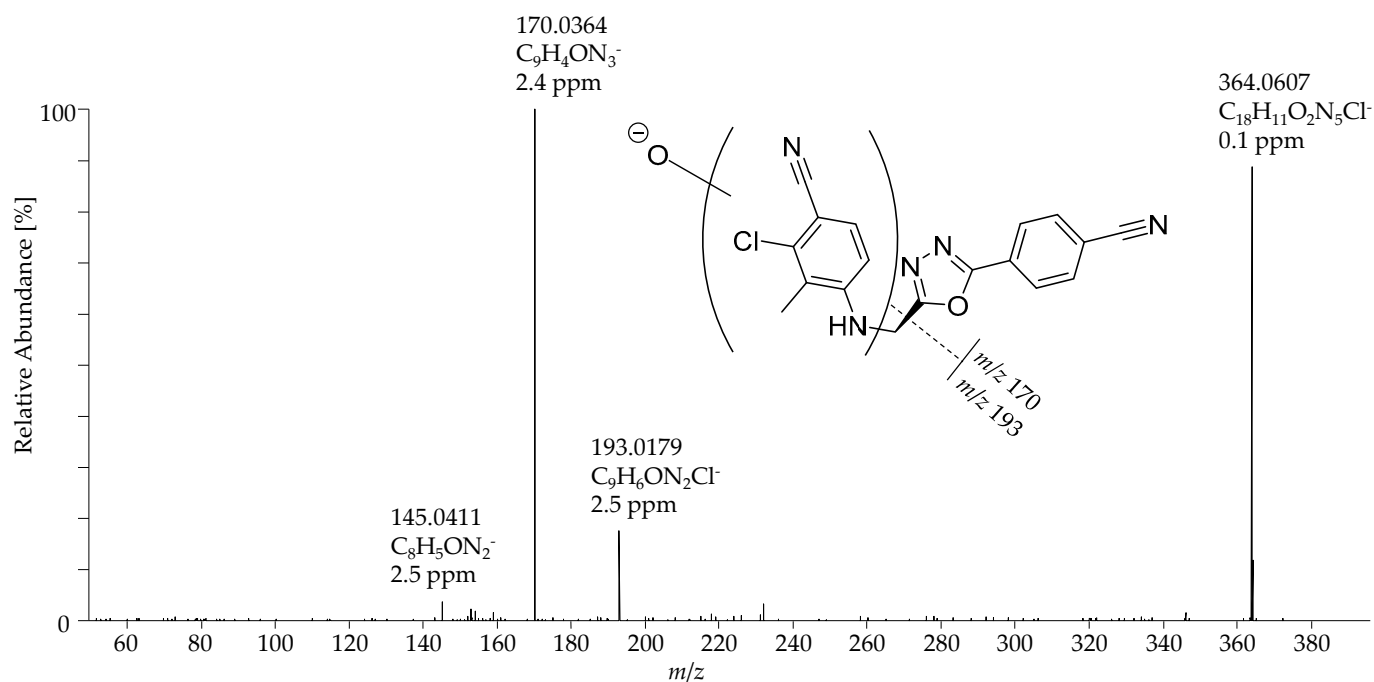
**Figure S6.** HRMS/MS spectrum and structure of M3, sample: RDS, urine sample was diluted 1:10 with water and prepared by hydrolysis and LLE. NCE 50%, isolation window  $m/z$  1.



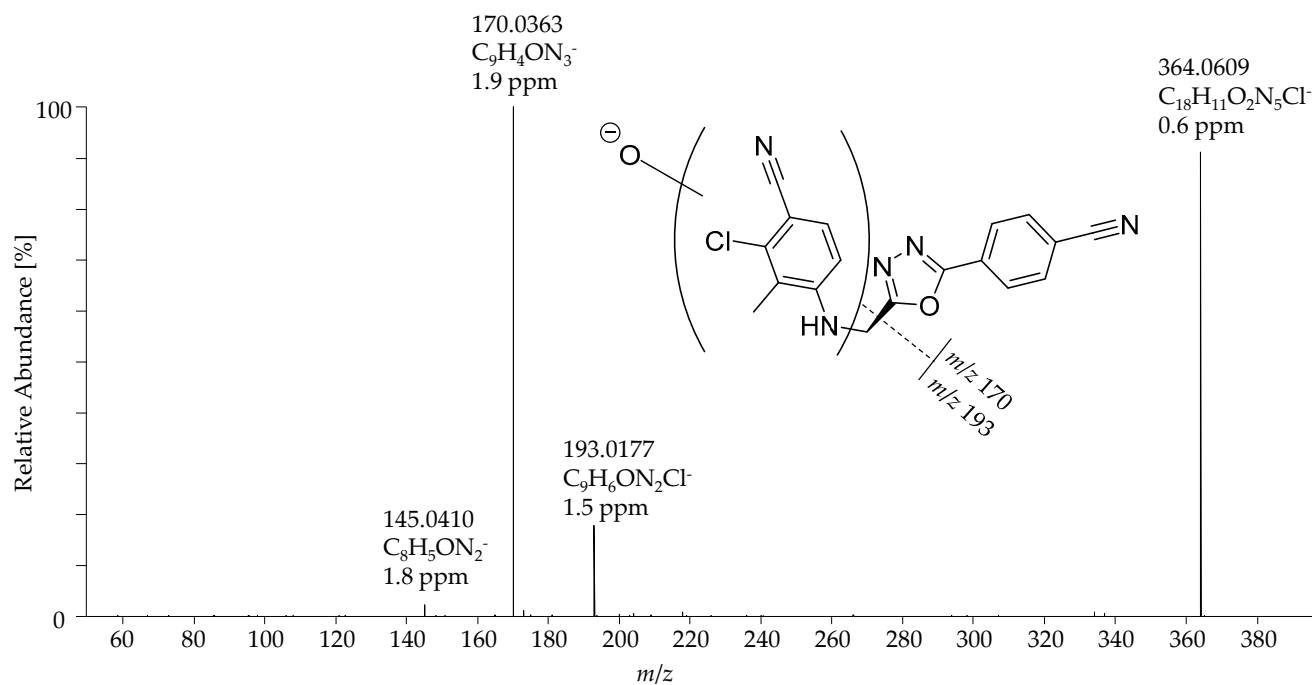
**Figure S7.** HRMS/MS spectrum and postulated structure of M4, sample: RDS, urine sample was injected directly. NCE 15%, isolation window  $m/z$  1.



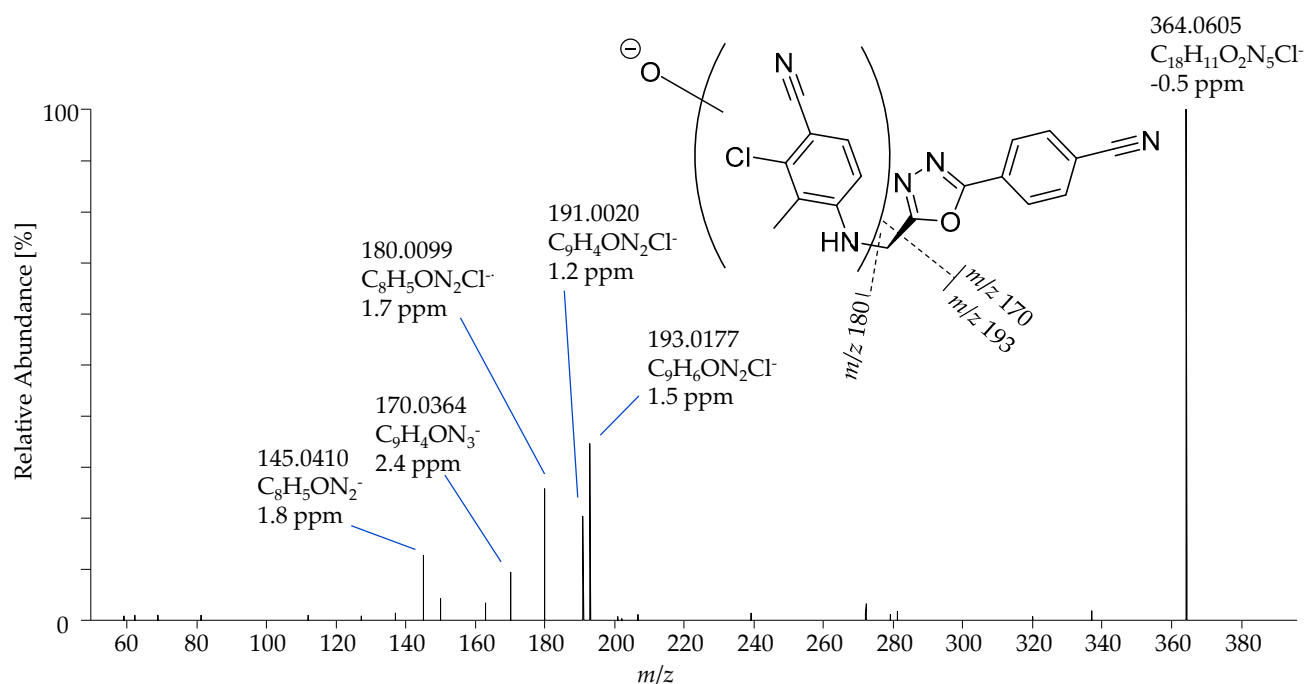
**Figure S8.** HRMS/MS spectrum and structure of M5, sample: RDS, urine sample was diluted 1:10 with water and prepared by hydrolysis and LLE. NCE 30%, isolation window  $m/z$  1.



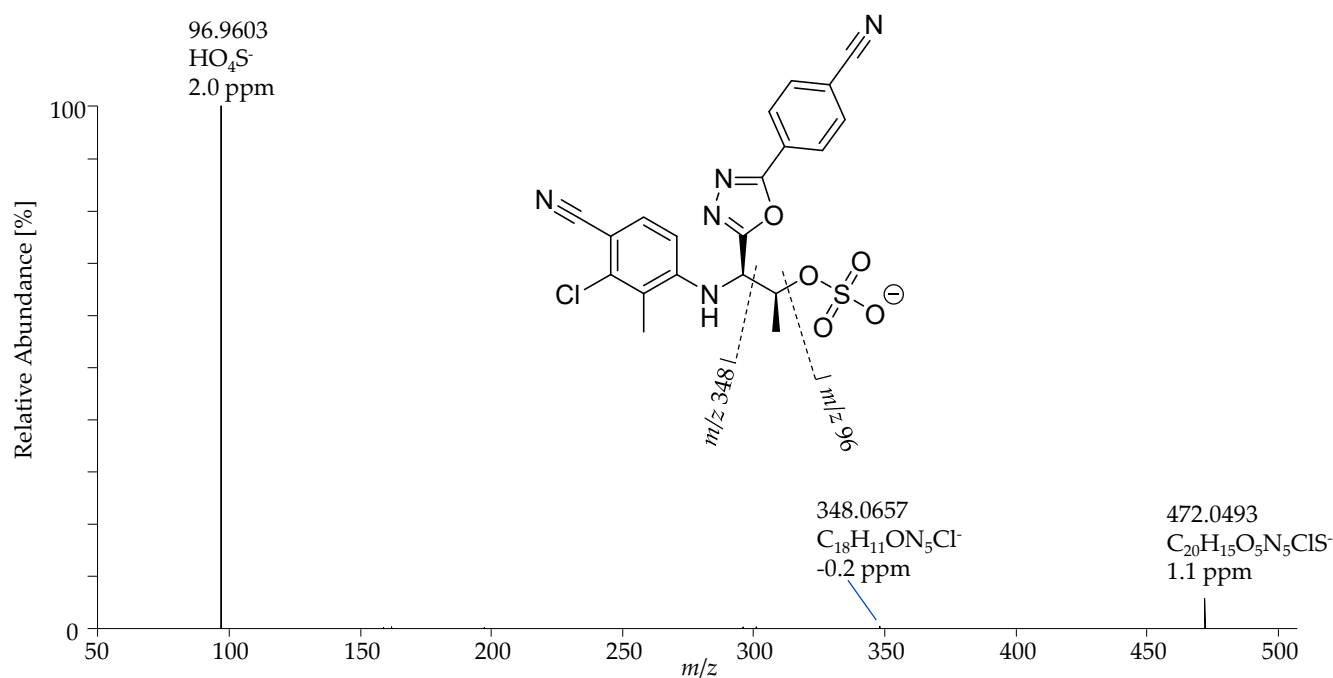
**Figure S9.** HRMS/MS spectrum and structure of M6a, sample: RDS, urine sample was diluted 1:10 with water and prepared by hydrolysis and LLE. NCE 15%, isolation window  $m/z$  1.



**Figure S10.** HRMS/MS spectrum and structure of M6b, sample: RDS, urine sample was diluted 1:10 with water and prepared by hydrolysis and LLE. NCE 15%, isolation window  $m/z$  1.

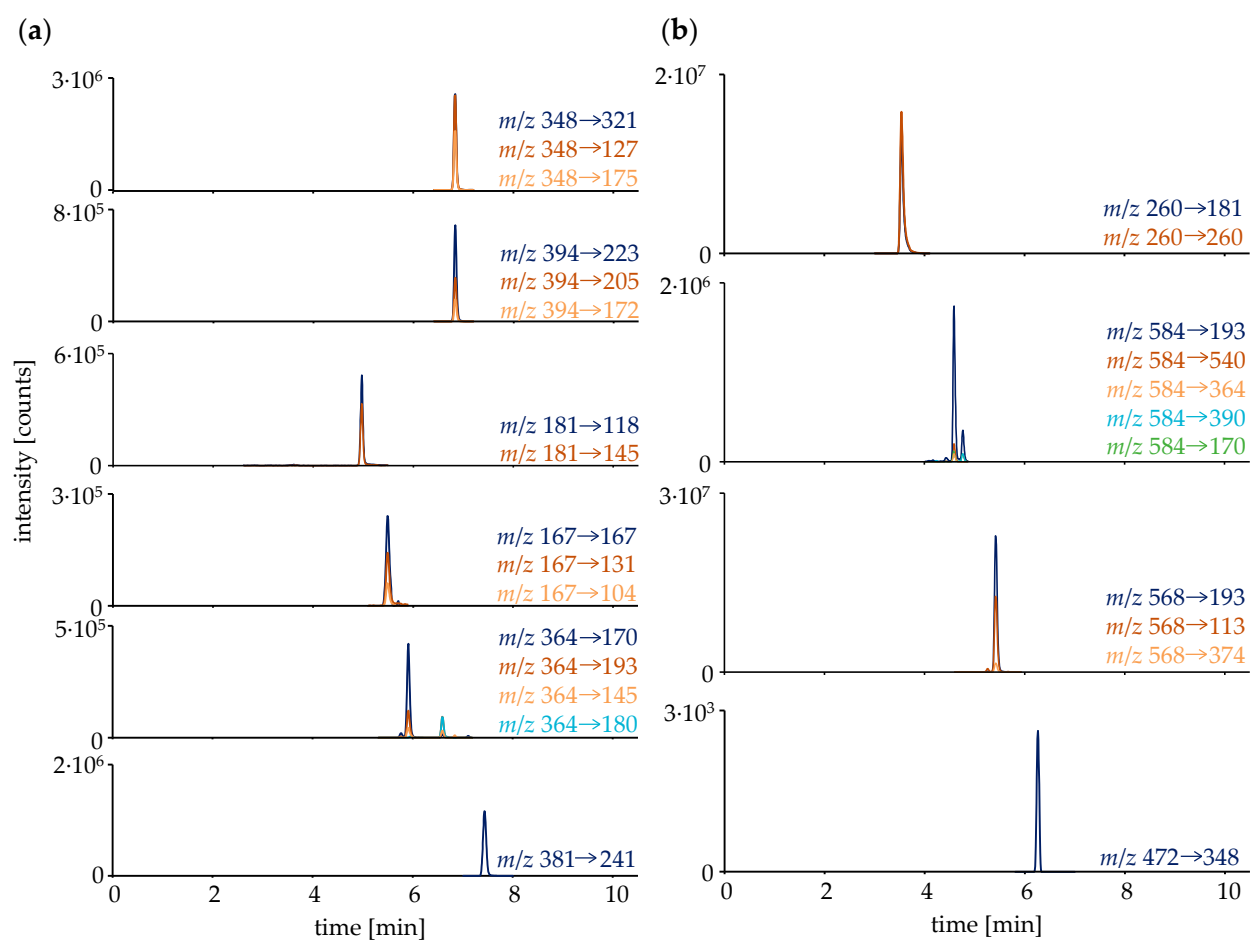


**Figure S11.** HRMS/MS spectrum and structure of M6c, sample: RDS, urine sample was diluted 1:10 with water and prepared by hydrolysis and LLE. NCE 20%, isolation window  $m/z$  1.

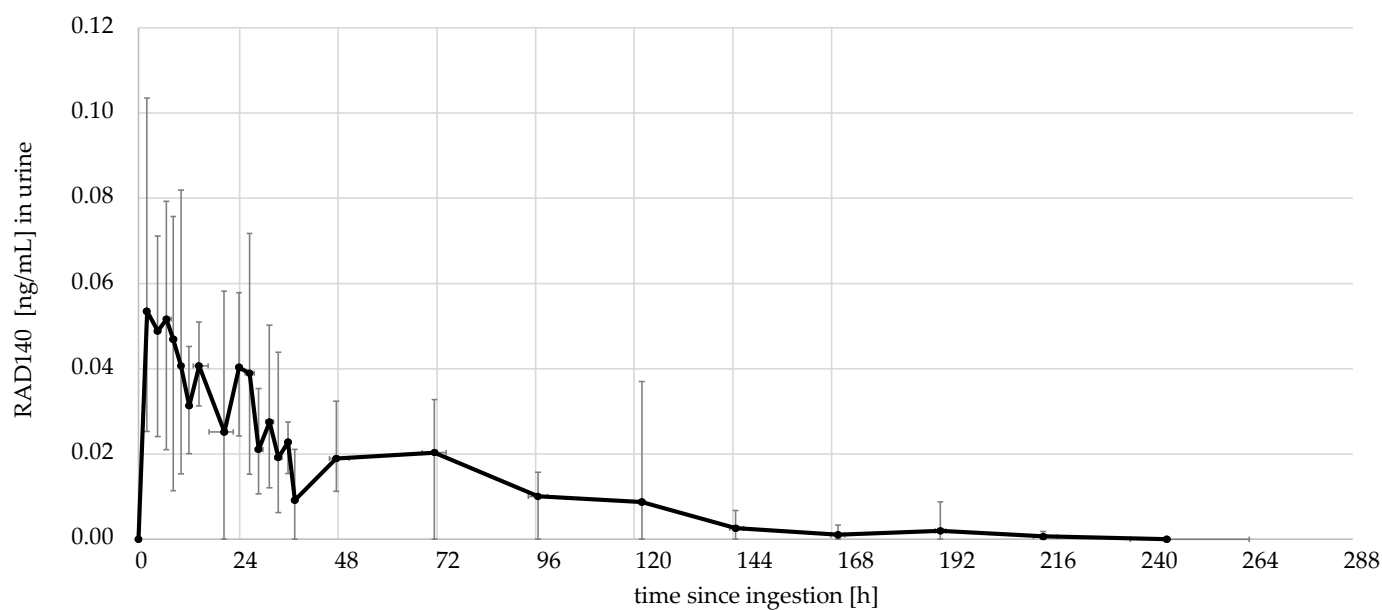


**Figure S12.** HRMS/MS spectrum and postulated structure of M7, sample: RDS, urine sample was injected directly. NCE 25%, isolation window  $m/z$  1.

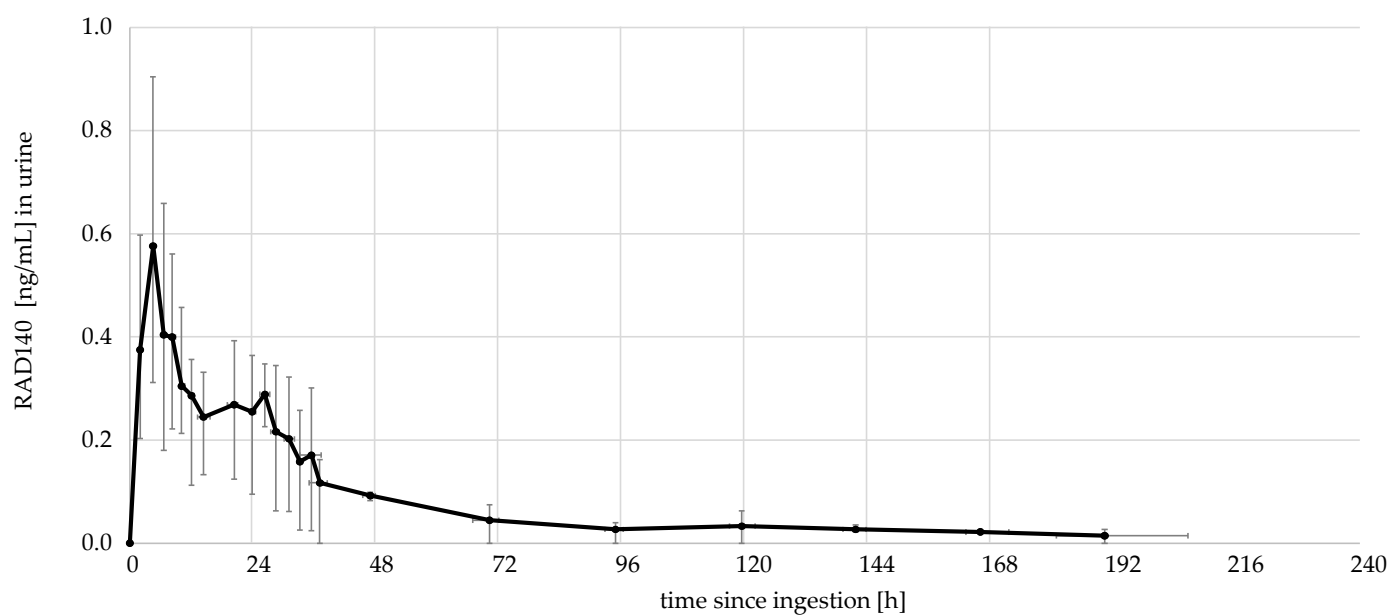




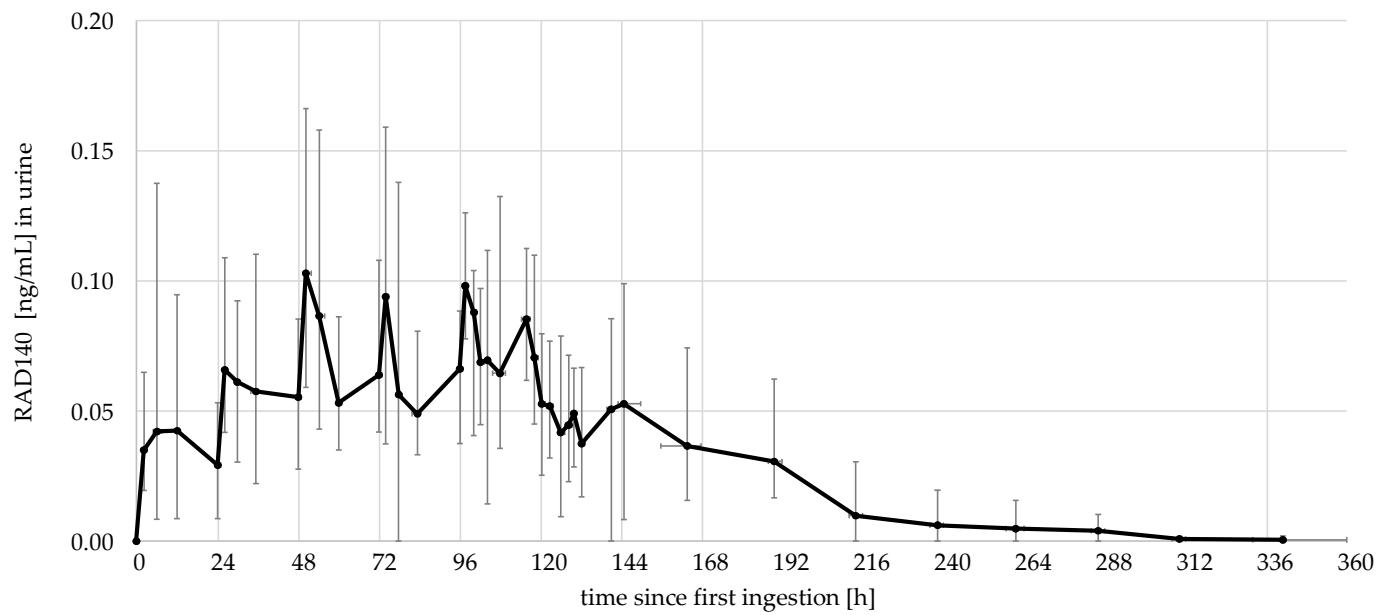
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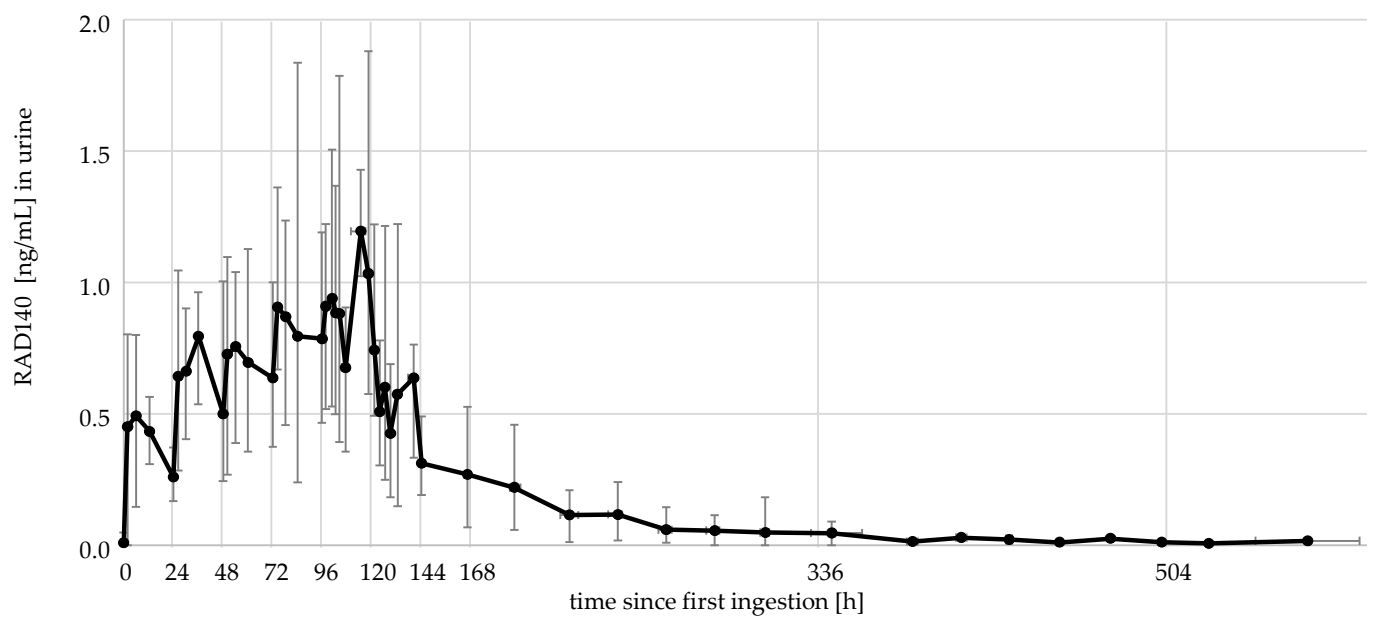
**Figure S14.** Elimination profile of RAD140 after the intake of a single dose of 1 µg RAD140. The black line indicates the average values of the five volunteers, minimum and maximum values are shown as error bars.



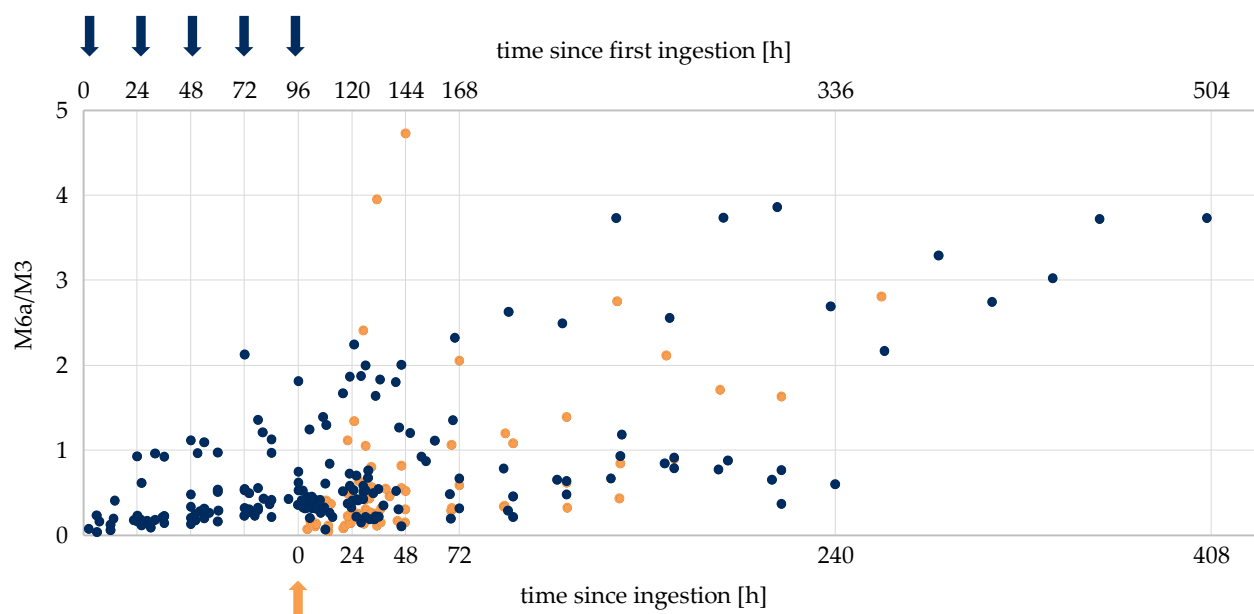
**Figure S15.** Elimination profile of RAD140 after the intake of a single dose of 10 µg RAD140. The black line indicates the average values of the five volunteers, minimum and maximum values are shown as error bars.



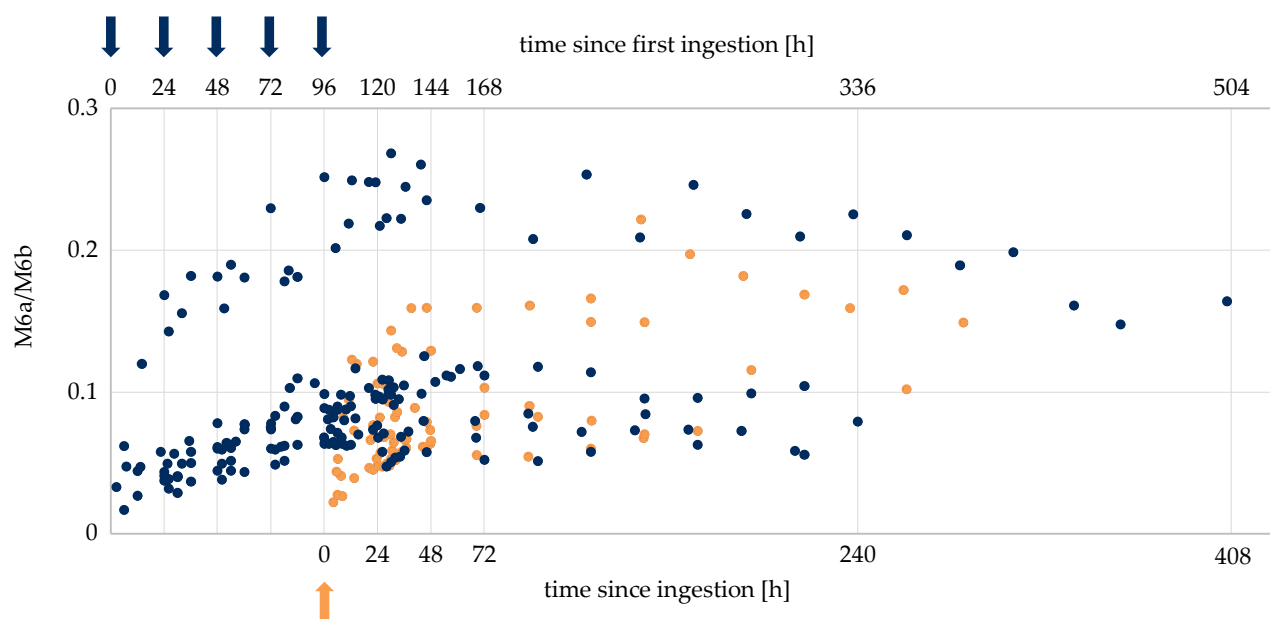
**Figure S16.** Elimination profile of RAD140 after the intake of five doses of 1 µg RAD140 over 5 days. The black line indicates the average values of the five volunteers, minimum and maximum values are shown as error bars.



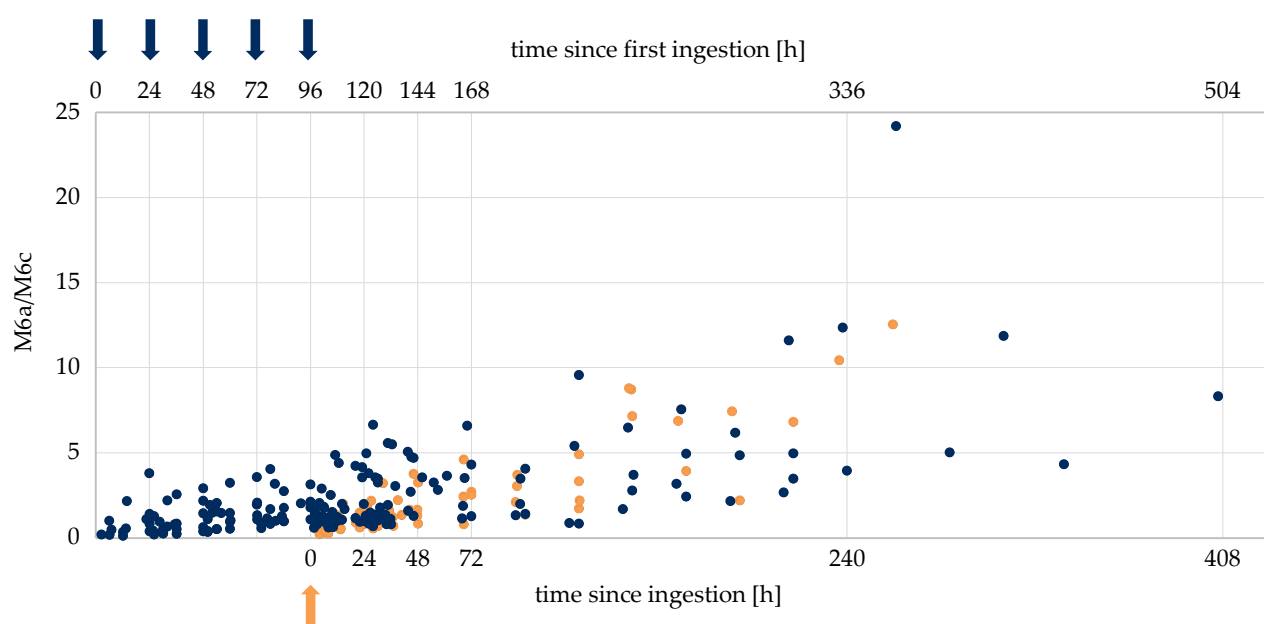
**Figure S17.** Elimination profile of RAD140 after the intake of five doses of 10 µg RAD140 over 5 days. The black line indicates the average values of the five volunteers, minimum and maximum values are shown as error bars.



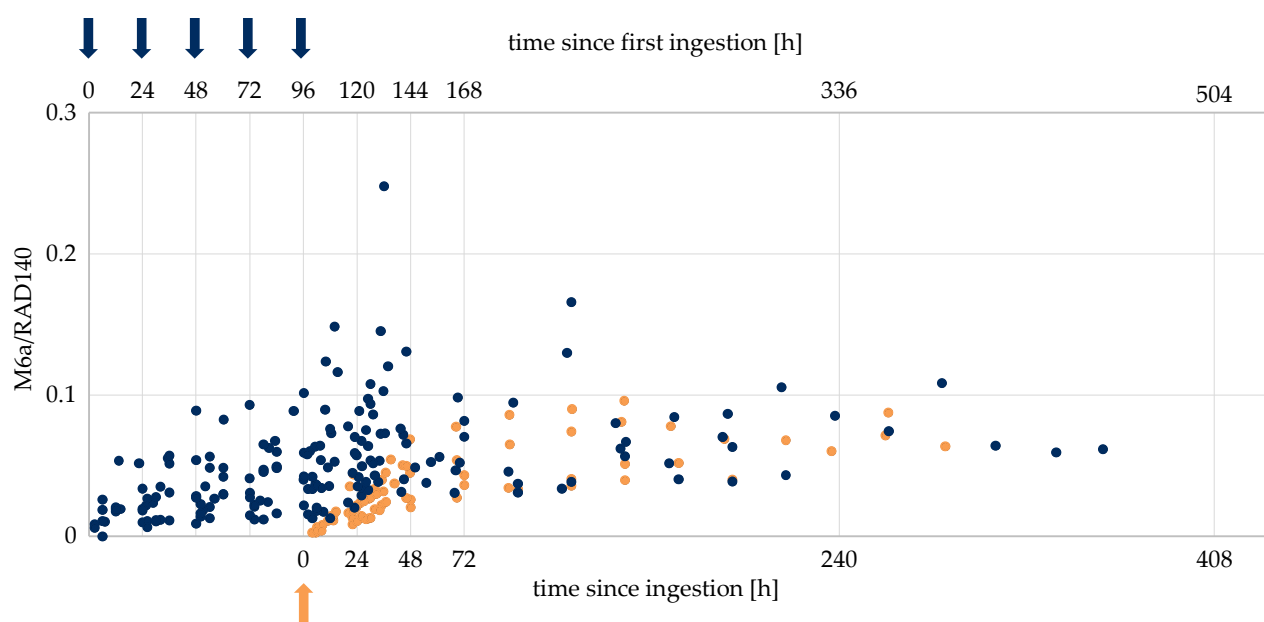
**Figure S18.** Metabolite ratios  $M6a/M3$  of single application of RAD140 (orange) and multi-dose application of RAD140 (blue). Arrows indicate the intake of 50  $\mu\text{g}$  RAD140.



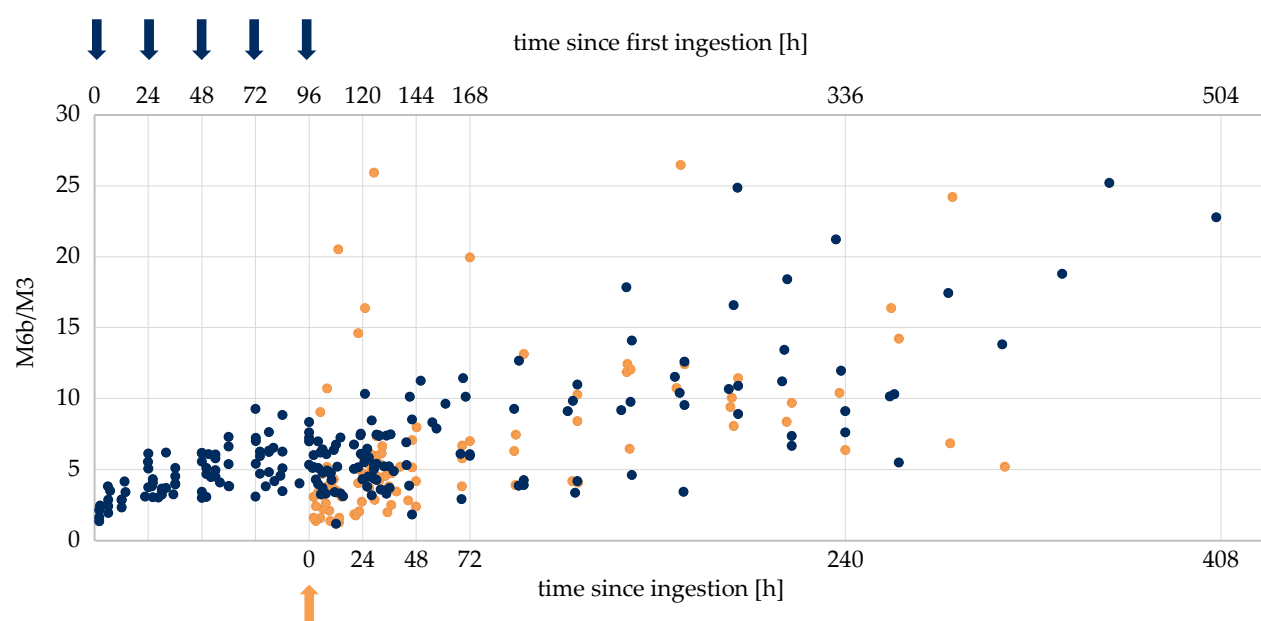
**Figure S19.** Metabolite ratios  $M6a/M6b$  of single application of RAD140 (orange) and multi-dose application of RAD140 (blue). Arrows indicate the intake of 50  $\mu\text{g}$  RAD140.



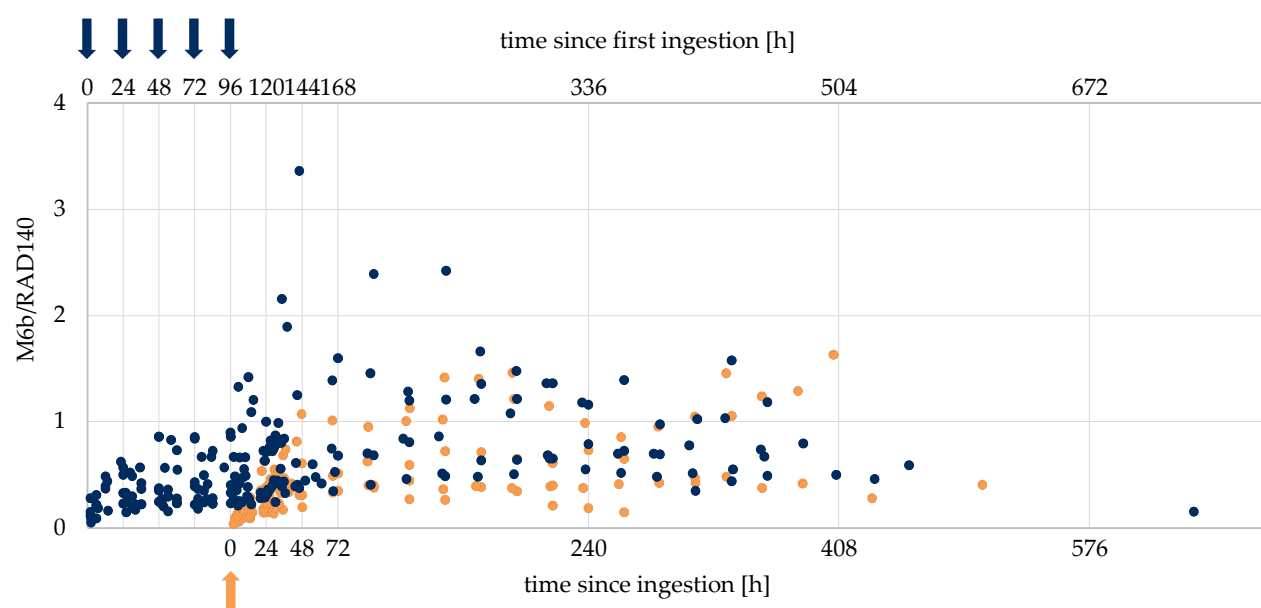
**Figure S20.** Metabolite ratios  $M6a/M6c$  of single application of RAD140 (orange) and multi-dose application of RAD140 (blue). Arrows indicate the intake of 50  $\mu\text{g}$  RAD140.



**Figure S21.** Metabolite ratios  $M6a/RAD140$  of single application of RAD140 (orange) and multi-dose application of RAD140 (blue). Arrows indicate the intake of 50  $\mu\text{g}$  RAD140.



**Figure S22.** Metabolite ratios  $M6b/M3$  of single application of RAD140 (orange) and multi-dose application of RAD140 (blue). Arrows indicate the intake of 50  $\mu\text{g}$  RAD140.



**Figure S23.** Metabolite ratios  $M6b/RAD140$  of single application of RAD140 (orange) and multi-dose application of RAD140 (blue). Arrows indicate the intake of 50  $\mu\text{g}$  RAD140.