Supporting Information for:

Synthesis and evaluation of protein arginine
N-methyltransferase inhibitors designed to simultaneously occupy both substrate
binding sites

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$^1$H and $^{13}$C NMR spectra for new compounds

**Compound 1: $^1$H NMR (400 MHz, D$_2$O)**

![NMR spectrum of Compound 1](image1)

**Compound 1: H-H COSY NMR (400 MHz, D$_2$O)**

![COSY spectrum of Compound 1](image2)
Compound 1: $^{13}$C NMR (75 MHz, D$_2$O)
Compound 2: $^1$H NMR (400 MHz, D$_2$O)

![NMR spectrum image]

Compound 2: H-H COSY NMR (400 MHz, D$_2$O)

![COSY spectrum image]
Compound 2: $^{13}$C NMR (75 MHz, D$_2$O)
Compound 3: $^1$H NMR (400 MHz, D$_2$O)

Compound 3: H-H COSY NMR (400 MHz, D$_2$O)
Compound 3: $^{13}$C NMR (75 MHz, D$_2$O)
**Compound 4: $^1$H NMR (400 MHz, D$_2$O)**

![NMR spectrum of Compound 4](image)

**Compound 4: H-H COSY NMR (400 MHz, D$_2$O)**

![COSY spectrum of Compound 4](image)
Compound 4: $^{13}$C NMR (75 MHz, D$_2$O)
Compound 5: $^1$H NMR (400 MHz, D$_2$O)

Compound 5: H-H COSY NMR (400 MHz, D$_2$O)
Compound 5: $^{13}$C NMR (75 MHz, D$_2$O)
Compound 6: $^1$H NMR (400 MHz, D$_2$O)

Compound 6: H-H COSY NMR (400 MHz, D$_2$O)
Compound 6: $^{13}$C NMR (75 MHz, D$_2$O)
Compound 10: $^1$H NMR (300 MHz, CDCl$_3$)

Compound 10: $^{13}$C NMR (75 MHz, CDCl$_3$)
Compound 15: $^1$H NMR (300 MHz, CDCl$_3$)

[Chemical structure image]

Compound 15: $^{13}$C NMR (75 MHz, CDCl$_3$)

[Chemical structure image]
Compound 17: $^1$H NMR (300 MHz, CDCl$_3$)

Compound 17: $^{13}$C NMR (75 MHz, CDCl$_3$)
Compound 18: $^1$H NMR (300 MHz, CDCl$_3$)

Compound 18: $^{13}$C NMR (75 MHz, CDCl$_3$)
Compound 19: $^1$H NMR (300 MHz, CDCl$_3$)

Compound 19: $^{13}$C NMR (75 MHz, CDCl$_3$)
Compound 21: $^1$H NMR (300 MHz, CDCl$_3$)

![H NMR spectrum of Compound 21](image)

Compound 21: $^{13}$C NMR (75 MHz, CDCl$_3$)

![C NMR spectrum of Compound 21](image)
Compound 22: $^1$H NMR (300 MHz, CDCl$_3$)

Compound 22: $^{13}$C NMR (75 MHz, CDCl$_3$)
Compound 31: $^1$H NMR (300 MHz, CDCl$_3$)

Compound 31: $^{13}$C NMR (75 MHz, CDCl$_3$)
Analytical RP-HPLC traces for compounds 1-6

**Compound 1**

![Compound 1 diagram]

**Compound 2**

![Compound 2 diagram]
IC₅₀ curves of Compounds 1-6 and AdoHcy

**AdoHcy - PRMT 1**

IC₅₀ = 6.21 ± 0.56 µM

**AdoHcy - PRMT 4**

IC₅₀ = 0.67 ± 0.19 µM

**AdoHcy - PRMT 6**

IC₅₀ = 0.20 ± 0.25 µM

**AdoHcy – G9a**

IC₅₀ = 16.64 ± 6.43 µM

**Compound 1 - PRMT 1**

IC₅₀ = 11.09 ± 2.77 µM

**Compound 1 - PRMT 4**

IC₅₀ = 0.12 ± 0.02 µM

**Compound 1 - PRMT 6**

IC₅₀ = 20.23 ± 8.67 µM

**Compound 2 - PRMT 1**

IC₅₀ = 1.30 ± 0.38 µM

**Compound 2 - PRMT 4**

IC₅₀ = 0.56 ± 0.25 µM

**Compound 2 - PRMT 6**

IC₅₀ = 0.72 ± 0.33 µM

**Compound 3 - PRMT 1**

IC₅₀ = 16.96 ± 3.73 µM

**Compound 3 - PRMT 4**

IC₅₀ = 0.15 ± 0.05 µM

**Compound 3 - PRMT 6**

IC₅₀ = 5.15 ± 1.27 µM

**Compound 4 – G9a**

IC₅₀ = 3.18 ± 2.67 µM

**Compound 6 - PRMT6**

IC₅₀ = 3.20 ± 3.93 µM