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Table of ^1H nmr Chemical Shifts (ppm, DMSO- d_6) for Compounds A, 1-28

compound (configuration)	^1H -NMR-spectrum
A (Z)	6.85 (ddd, 1H, pyridine-H5#, $J = 6.1$ Hz, $J = 6.0$ Hz), 7.31-7.54 (m, 8H), 7.69 (ddd, 1H, pyridine-H4#, $J_{34} = J_{45} = 7.8$ Hz), 7.95 (ddd, 1H, pyridine-H4, $J_{34} = J_{45} = 7.9$ Hz), 8.15 (ddd, 1H, pyridine-H6#, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 8.86 (ddd, 1H, pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 12.90 (br s, 1H, NH)
1 (E)	3.85 (s, 3H, OCH_3), 6.85 (ddd, 1H, pyridine-H5#, $J_{45} = 7.2$ Hz, $J_{56} = 4.9$ Hz, $J_{35} = 1.0$ Hz), 7.09-7.16 (AA'BB', 2H, Ph-H3/5), 7.25-7.34 (m, 3H, Ph-H2/6 and pyridine-H4#), 7.45 (ddd, 1H, pyridine-H3#, $J_{34} = 10.4$ Hz), 7.73 (ddd, 1H, pyridine-H4#, $J = 9.0$ Hz, $J = 7.2$ Hz, $J = 1.9$ Hz), 7.84 (ddd, 1H, , pyridine-H4, $J_{34} = 9.8$ Hz, $J_{45} = 8.1$ Hz, $J_{46} = 1.7$ Hz), 8.07 (ddd, 1H, pyridine-H6#, $J_{56} = 4.0$ Hz), 8.18 (ddd, 1H, pyridine-H3, $J_{34} = 8.1$ Hz), 8.44 (ddd, 1H, pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 8.58 (br s, 1H, NH)
2 (Z)	6.80-6.88 (m, 3H, Ph-H3/5 and pyridine-H5#), 7.33-7.42 (m, 4H, Ph-H2/6, pyridine-H3 and pyridine-H3#), 7.53 (ddd, 1H, pyridine-H, $J = 7.6$, $J = 4.9$ Hz, $J = 1.1$ Hz), 7.70 (ddd, 1H, pyridine-H, $J = 9.0$ Hz, $J = 7.2$ Hz, $J = 1.9$ Hz), 7.98 (ddd, 1H, pyridine-H, $J = 9.8$ Hz, $J = 7.9$ Hz, $J = 1.9$ Hz), 8.13 (ddd, 1H, pyridine-H6#, $J_{56} = 4.9$ Hz), 8.87 (ddd, 1H, pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 9.72 (br s, 1H, OH), 12.42 (br s, 1H, NH)
3 (,,Z'')	6.91 (ddd, 1H, pyridine-H5#, $J_{45} = 7.0$ Hz, $J_{56} = 4.9$ Hz, $J_{35} = 0.8$ Hz), 7.37-7.54 (m, 3H), 7.59 (ddd, 1H, E-pyridine-H3, $J_{34} = 8.1$ Hz), 7.74 (ddd, 1H, pyridine-H4#, $J = 9.0$ Hz, $J = 7.2$ Hz, $J_{46} = 1.8$ Hz), 7.88-8.03 (m, 3H), 8.19 (ddd, 1H, pyridine-H6#, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 8.56 (ddd, 1H, E-pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 8.84 (ddd, 1H, Z-pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 13.37 (br s, 1H, NH)
4 (Z)	7.36-7.64 (m, 8H), 8.01 (ddd, 1H, pyridine-H4, $J_{34} = J_{45} = 7.7$ Hz, $J_{46} = 1.8$

	Hz), 8.44 (dd, 1H, pyridine-H4#, $J_{34} = 9.4$ Hz, $J_{46} = 2.6$ Hz), 8.90 (ddd, 1H, pyridine-H6, $J_{56} = 4.6$ Hz), 9.03 (d, 1H, pyridine-H6#, $J_{46} = 2.6$ Hz), 13.55 (br s, 1H, NH)
5 (E)	7.74 (ddd, 1H, pyridine-H5, $J_{45} = 7.4$ Hz, $J_{56} = 4.8$ Hz, $J_{35} = 1.2$ Hz), 7.82-8.12 (m, 6H), 8.20 (dd, 1H, pyridine-H4#, $J_{34} = 9.0$ Hz, $J_{46} = 2.4$ Hz), 8.29 (ddd, 1H, pyridine-H4, $J_{34} = J_{45} = 8.0$ Hz, $J_{46} = 1.9$ Hz), 8.50 (dd, 1H, pyridine-H6#, $J_{46} = 2.4$ Hz, $J_{36} = 0.8$ Hz), 8.71 (ddd, 1H, pyridine-H3, $J_{34} = 8.0$ Hz), 8.87 (1H, pyridine-H6, $J_{56} = 4.8$ Hz, $J_{46} = 1.9$ Hz, $J_{36} = 0.9$ Hz), 8.95 (br s, 1H, NH)
5 (Z)	7.31-7.60 (m, 8H), 7.77 (dd, 1H, pyridine-H4#, $J_{34} = 9.0$ Hz, $J_{46} = 2.6$ Hz), 7.97 (ddd, 1H, pyridine-H4, $J_{34} = J_{45} = 7.8$ Hz, $J_{46} = 1.8$ Hz), 8.18 (br d, 1H, pyridine-H6#, $J_{46} = 2.6$ Hz), 8.87 (ddd, 1H, pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.9$ Hz, $J_{36} = 0.9$ Hz), 13.07 (br s, 1H, NH)
6 (E:Z=50:50)	6.90 (br d, $J = 7.6$ Hz), 7.29-8.01 (m), 8.16 (ddd, E-pyridine-H3, $J_{34} = 7.0$ Hz), 8.45 (ddd, E-pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 8.85 (br s, E-NH), 8.89 (ddd, Z-pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 12.79 (br s, Z-NH)
7 (E)	2.19 (s, 3H, CH ₃), 7.26-7.63 (m, 8H), 7.80-7.92 (m, 2H), 8.19 (ddd, 1H, pyridine-H3, $J_{34} = 7.8$ Hz), 8.39-8.45 (m, 2H)
7 (Z)	2.20 (s, 3H, CH ₃), 7.27-7.58 (m, 9H), 7.91-9.00 (m, 2H), 8.87 (ddd, 1H, pyridine-H6, $J_{56} = 5.0$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 12.88 (br s, 1H, NH)
8 (E:Z=65:35)	7.32-7.61 (m), 7.88 (ddd, Z-pyridine-H4, $J = 9.3$ Hz, $J = 8.0$ Hz, $J_{46} = 1.8$ Hz), 7.95-8.07 (m), 8.21 (ddd, E-pyridine-H3, $J_{34} = 8.0$ Hz), 8.42-8.51 (m), 8.89 (ddd, Z-pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 13.27 (br s, Z-NH)
9 (Z)	7.42-7.71 (m, 7H), 8.07 (ddd, 1H, pyridine-H4, $J_{34} = J_{45} = 7.7$ Hz, $J_{46} = 1.8$ Hz), 8.96 (ddd, 1H, pyridine-H6, $J_{56} = 4.9$ Hz), 9.05 (d, 1H, pyridine-H4#, $J_{46} = 2.5$ Hz), 9.38 (d, 1H, pyridine-H6#, $J_{46} = 2.5$ Hz), 15.23 (br s, 1H, NH)
10 (Z)	7.36 (ddd, 1H, pyridine-H3, $J_{34} = 8.0$ Hz), 7.45-7.63 (m, 6H), 8.02 (ddd, 1H, pyridine-H4, $J_{34} = J_{45} = 7.8$ Hz, $J_{46} = 1.8$ Hz), 8.20 (dq, 1H, pyridine-

	H4#, $J_{4F} = 0.4$ Hz, $J_{46} = 2.1$ Hz), 8.55 (dq, 1H, pyridine-H6#, $J_{6F} = 0.4$ Hz, $J_{46} = 2.1$ Hz), 8.91 (ddd, 1H, pyridine-H6, $J_{56} = 4.8$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 14.80 (br s, NH)
11 (Z)	7.32 (ddd, 1H, pyridine-H3, $J_{34} = 8.1$ Hz), 7.38-7.61 (m, 6H), 8.00 (ddd, 1H, pyridine-H4, $J_{34} = J_{45} = 8.0$ Hz, $J_{46} = 1.8$ Hz), 8.13 (br d, 1H, pyridine-H4#, $J_{46} = 2.2$ Hz), 8.53 (br d, 1H, pyridine-H6#, $J_{46} = 2.2$ Hz), 8.77 (ddd, 1H, pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 14.86 (br s, NH)
12 (E:Z=90:10)	6.89 (ddd, E-pyridine-H5, $J_{45} = 7.2$ Hz, $J_{56} = 5.0$ Hz, $J_{35} = 1.0$ Hz), 7.36-7.68 (m), 7.75 (ddd, E-pyridine-H4, $J_{34} = 8.4$ Hz, $J_{45} = 7.2$ Hz, $J_{46} = 1.9$ Hz), 8.10 (ddd, E-pyridine-H6, $J_{56} = 5.0$ Hz, $J_{46} = 1.9$ Hz, $J_{36} = 0.9$ Hz), 8.16 (ddd, Z-pyridine-H6, $J_{56} = 5.0$ Hz, $J_{46} = 1.9$ Hz, $J_{36} = 0.9$ Hz), 8.46 (dd, E-pyrazine-H6, $J_{56} = 2.5$ Hz, $J_{36} = 1.5$ Hz), 8.52 (d, E-pyrazine-H5, $J_{56} = 2.5$ Hz), 8.61 (d, Z-pyrazine-H3, $J_{36} = 1.5$ Hz), 8.71 (br s, E-NH), 8.73 (d, Z-pyrazine-H5, $J_{56} = 2.5$ Hz), 8.90 (dd, Z-pyrazine-H6, $J_{56} = 2.5$ Hz, $J_{36} = 1.5$ Hz), 9.40 (d, E-pyrazine-H3, $J_{36} = 1.5$ Hz), 11.98 (br s, Z-NH)
13 (E)	3.86 (s, 3H, OCH ₃), 6.89 (ddd, 1H, pyridine-H5, $J_{45} = 7.2$ Hz, $J_{56} = 4.9$ Hz, $J_{35} = 1.0$ Hz), 7.11-7.18 (AA'BB', 2H, phenyl-H3/5), 7.31-7.38 (AA'BB', 2H, phenyl-H2/6), 7.51 (ddd, 1H, pyridine-H3, $J_{34} = 8.4$ Hz), 7.75 (ddd, 1H, pyridine-H4, $J_{34} = 8.4$ Hz, $J_{45} = 7.2$ Hz, $J_{46} = 1.8$ Hz), 8.11 (ddd, 1H, pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 8.47 (dd, 1H, pyrazine-H6, $J_{56} = 2.6$ Hz, $J_{36} = 1.5$ Hz), 8.52 (d, 1H, pyrazine-H5, $J_{56} = 2.6$ Hz), 8.78 (br s, 1H, NH), 9.37 (d, 1H, pyrazine-H3, $J_{36} = 1.5$ Hz)
14 (E:Z=65:35)	6.88-6.95 (m, E/Z-pyridine-H5), 7.34-7.81 (m), 8.11 (ddd, E-pyridine-H6, $J_{56} = 5.0$ Hz, $J_{46} = 1.9$ Hz, $J_{36} = 0.9$ Hz), 8.17-8.22 (m), 8.78 (d, E-pyrimidine-H6, $J_{56} = 5.4$ Hz), 8.94 (d, Z-pyrimidine-H6, $J_{56} = 5.4$ Hz), 8.97 (br s, E-NH), 9.01 (d, E-pyrimidine-H2, $J_{25} = 1.3$ Hz), 9.47 (d, Z-pyrimidine-H2, $J_{25} = 1.3$ Hz), 12.77 (br s, Z-NH)
15 (E:Z=20:80)	6.85-6.95 (m, E/Z-pyridine-H5), 7.30-7.78 (m), 8.08 (ddd, E-pyridine-H6, $J_{56} = 5.0$ Hz, $J_{46} = 1.9$ Hz, $J_{36} = 0.9$ Hz), 8.19 (ddd, Z-pyridine-H6, $J_{56} = 5.0$ Hz, $J_{46} = 1.9$ Hz, $J_{36} = 0.9$ Hz), 8.58 (br s, E-NH), 8.80 (d, E-pyrimidine-H4/6, $J_{45} = J_{46} = 4.9$ Hz), 9.04 (d, Z-pyrimidine-H4/6, $J_{45} = J_{46} =$

	4.9 Hz), 12.82 (br s, Z-NH)
16 (E)	6.89 (ddd, 1H, pyridine-H5, $J_{45} = 7.2$ Hz, $J_{56} = 4.9$ Hz, $J_{35} = 1.0$ Hz), 7.35-7.80 (m, 9H), 8.09 (ddd, 1H, pyridine-H6#, $J_{56} = 5.0$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 8.53-8.58 (AA'BB', 2H, pyridine-H2/6), 8.66 (br s, 1H, NH)
17 (E:Z=85:15)	7.29-7.62 (m), 7.86 (ddd, E-pyridine-H4, $J_{34} = 8.0$ Hz, $J_{45} = 7.8$ Hz, $J_{46} = 1.8$ Hz), 7.98 (ddd, Z-pyridine-H4, $J_{34} = 8.0$ Hz, $J_{45} = 7.8$ Hz, $J_{46} = 1.8$ Hz), 8.07-8.17 (m, E/Z-pyrazine-H5/6), 8.23 (ddd, E-pyridine-H3, $J_{34} = 8.0$ Hz), 8.44 (ddd, E-pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 8.73 (d, Z-pyrazine-H3, $J_{36} = 1.2$ Hz), 8.80 (d, E-pyrazine-H3, $J_{36} = 1.2$ Hz), 8.87 (ddd, Z-pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 8.89 (br s, E-NH), 12.78 (br s, Z-NH)
18 (E)	7.29-7.59 (m, 7H), 7.89 (ddd, 1H, pyridine-H4, $J_{34} = 8.1$ Hz, $J_{45} = 7.6$ Hz, $J_{46} = 1.8$ Hz), 8.27 (ddd, 1H, pyridine-H3, $J_{34} = 8.1$ Hz), 8.44 (d, 1H, pyrimidine-H2, $J_{25} = 1.0$ Hz), 8.45 (ddd, 1H, pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 9.89 (br s, 1H, NH)
19 (Z)	7.31 (dd, 1H, pyrimidine-H5, $J_{56} = 5.9$ Hz, $J_{25} = 1.2$ Hz), 7.33-7.60 (m, 7H), 7.98 (ddd, 1H, pyridine-H4, $J_{34} = 7.9$ Hz, $J_{45} = 7.7$ Hz, $J_{46} = 1.8$ Hz), 8.43 (d, 1H, pyrimidine-H6, $J_{56} = 5.9$ Hz), 8.62 (d, 1H, pyrimidine-H2, $J_{25} = 1.2$ Hz), 8.86 (ddd, 1H, pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 12.86 (br s, 1H, NH)
20 (Z)	2.38 (s, 3H, CH ₃), 7.20 (d, 1H, pyrimidine-H5, $J_{25} = 1.1$ Hz), 7.32-7.61 (m, 7H), 7.99 (ddd, 1H, pyridine-H4, $J_{34} = J_{45} = 7.8$ Hz, $J_{46} = 1.8$ Hz), 8.51 (d, 1H, pyrimidine-H2, $J_{25} = 1.1$ Hz), 8.88 (ddd, 1H, pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 13.00 (br s, 1H, NH)
21 (Z)	6.94 (t, 1H, pyrimidine-H5, $J_{45} = J_{56} = 4.8$ Hz), 7.33 (ddd, 1H, pyridine-H3, $J_{34} = 8.0$ Hz), 7.43-7.59 (m, 6H), 7.98 (ddd, 1H, pyridine-H4, $J_{34} = 8.0$ Hz, $J_{45} = 7.8$ Hz, $J_{46} = 1.8$ Hz), 8.52 (d, 2H, pyrimidine-H4/6, $J_{45} = J_{56} = 4.8$ Hz), 8.88 (ddd, 1H, pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 13.24 (br s, 1H, NH)
22 (E:Z=35:65)	7.30-8.04 (m), 7.18 (ddd, E-pyridine-H3, $J_{34} = 7.9$ Hz), 8.45 (ddd, E-pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 8.89 (ddd, Z-

	pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 9.45 (br s, E-NH), 13.29 (br s, Z-NH)
23 (E)	2.50 (s, 3H, CH ₃), 7.28-7.73 (m, 8H), 7.85 (ddd, 1H, pyridine-H4, $J_{34} = J_{45} = 7.7$ Hz, $J_{46} = 1.7$ Hz), 8.18 (ddd, 1H, pyridine-H3, $J_{34} = 7.7$ Hz), 8.44 (ddd, 1H, pyridine-H6, $J_{56} = 4.8$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 8.96 (br s, 1H, NH)
24 (Z)	2.39 (br s, 3H, CH ₃), 7.35-7.63 (m, 8H), 8.20 (ddd, 1H, pyridine-H4, $J_{34} = 7.9$ Hz, $J_{45} = 7.7$ Hz, $J_{46} = 1.8$ Hz), 8.91 (br d, 1H, pyridine-H6, $J_{56} = 4.2$ Hz), 14.09 (br s, 1H, NH)
25 (E:Z=65:35)	7.28-8.01 (m), 8.20-8.28 (m), 8.45 (ddd, E-pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 8.85 (br s, E-NH), 8.92 (ddd, Z-pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 12.91 (br s, Z-NH)
26 (E)	6.30 (d, 1H, isoquinoline-H4, $J_{34} = 7.0$ Hz), 7.12-7.95 (m, 13H), 8.67 (ddd, 1H, pyridine-H6, $J_{56} = 4.8$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 10.72 (br s, 1H, NH)
27 (E:Z=25:75)	7.31-8.14 (m), 8.47 (ddd, E-pyridine-H6, $J_{56} = 4.9$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 8.66-8.74 (m), 12.18 (br s, Z-NH)
28 (E)	7.32-8.07 (m), 8.30 (ddd, pyridine-H3, $J_{34} = 7.8$ Hz), 8.48 (ddd, E-pyridine-H6, $J_{56} = 5.0$ Hz, $J_{46} = 1.8$ Hz, $J_{36} = 0.9$ Hz), 9.20 (br s, NH)

Chemical shifts are reported in parts per million (ppm, δ). Spectra were referenced to TMS ($\delta = 0$ ppm). All spectra were recorded in DMSO- d_6 . # represents the hydrazine part of the hydrazone.