Supplementary Information

Design, Synthesis and Antitumor Activity of Erlotinib Derivatives

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Figure S2-2. $^{13}$C NMR spectrum (150MHz, DMSO-d$_6$) of compound 3b
Figure S2-3. HR MS of compound 3b
Figure S3-1. $^1$H NMR spectrum (600MHz, DMSO-d$_6$) of compound 3c
Figure S3-2. $^{13}$C NMR spectrum (150MHz, DMSO-$d_6$) of compound 3c
Figure S3-3. HR MS of compound 3c

- RT: 0.09
- AV: 1
- NL: 1.40E6

FTMS + p ESI Full ms [100.0000-1000.0000]

m/z

Relative Abundance
Figure S4-1. $^1$H NMR spectrum (600MHz, DMSO-$d_6$) of compound 3d
Figure S4-2. $^{13}$C NMR spectrum (150MHz, DMSO-$d_6$) of compound 3d
Figure S4-3. HR MS of compound 3d

- RT: 0.08
- AV: 1
- NL: 1.55E7
- F: FTMS + p ESI Full ms [100.0000-1000.0000]

- Masses:
  - 682.0603
  - 683.0624
  - C29H29O4 N6Br2= 683.0612
  - 17.5 RDBE
  - 1.8796 ppm
  - 684.0656
  - 685.0803
Figure S5-1. $^1$H NMR spectrum (600MHz, DMSO-d$_6$) of compound 3e
Figure S5-2. $^{13}$C NMR spectrum (150MHz, DMSO-$d_6$) of compound 3e
Figure S5-3. HR MS of compound 3e
Figure S6-1. $^1$H NMR spectrum (600MHz, DMSO-d$_6$) of compound 3f
Figure S6-2. $^{13}$C NMR spectrum (150MHz, DMSO-$d_6$) of compound 3f
Figure S6-3. HR MS of compound 3f

- RT: 0.12
- AV: 1
- NL: 2.10E6
- F: FTMS + p ESI Full ms [100.0000-1000.0000]

Molecular formula: C28H27O4N6F
- Calculated mass: m/z 553.1979
- Relative abundance: 17.5

Experimental mass: m/z 553.1970
- 1.6889 ppm deviation
Figure S7-1. $^1$H NMR spectrum (600MHz, DMSO-d$_6$) of compound 3g
Figure S7-2. $^{13}$C NMR spectrum (150MHz, DMSO-$d_6$) of compound 3g
Figure S7-3. HR MS of compound 3g
Figure S8-1. $^1$H NMR spectrum (600MHz, DMSO-d$_6$) of compound 3h
Figure S8-2. $^{13}$C NMR spectrum (150MHz, DMSO-d$_6$) of compound 3h
Figure S8-3. HR MS of compound 3h
Figure S9-1. $^1$H NMR spectrum (600MHz, DMSO-$d_6$) of compound 3i
Figure S9-2. $^{13}$C NMR spectrum (150MHz, DMSO-$d_6$) of compound 3i
Figure S9-3. HR MS of compound 3i

C_{28}H_{27}O_4 N_6 Br Na = 613.1169

17.5 RDBE

1.8021 ppm

m/z

Relative Abundance

615.1162

614.1140

616.1190
Figure S10-1. $^1$H NMR spectrum (600MHz, DMSO-$d_6$) of compound 3j
Figure S10-2. $^{13}$C NMR spectrum (150MHz, DMSO-$d_6$) of compound 3j
Figure S10-3. HR MS of compound 3j

- m/z: 613.1177
- Calculated: C28H27O4N6Br Na = 613.1169
- 17.5 RDBE
- 1.2032 ppm
- 614.1207
- 615.1158
- 617.1214
- 615.1158
Figure S11-1. $^1$H NMR spectrum (600MHz, DMSO-d$_6$) of compound 3k
Figure S11-2. $^{13}$C NMR spectrum (150MHz, DMSO-$d_6$) of compound 3k
Figure S11-3. HR MS of compound 3k

564.0 564.5 565.0 565.5 566.0 566.5 567.0 567.5 568.0 568.5 569.0
m/z

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100
Relative Abundance

565.2172  C_{29}H_{30}O_{5}N_{6} Na = 565.2170

17.5 RDBE 0.4156 ppm
Figure S12-1. $^1$H NMR spectrum (600MHz, DMSO-d$_6$) of compound 3l
Figure S12-2. $^{13}$C NMR spectrum (150MHz, DMSO-$d_6$) of compound 3l
Figure S12-3. HR MS of compound 3l

- **RT:** 0.13
- **AV:** 1
- **NL:** 3.80E6

FTMS + p ESI Full ms [100.0000-1000.0000]
Figure S13-1. $^1$H NMR spectrum (600MHz, DMSO-$d_6$) of compound 3m
Figure S13-2. $^{13}$C NMR spectrum (150MHz, DMSO-d$_6$) of compound 3m
Figure S13-3. HR MS of compound 3m

- Retention Time (RT): 0.12-0.14
- Average (AV): 2
- Neutral Loss (NL): 1.15E6
- Form: FTMS + p ESI Full ms

M/z: 579.0, 579.5, 580.0, 580.5, 581.0, 581.5, 582.0, 582.5, 583.0, 583.5, 584.0

Relative Abundance:
- 580.1923
- 581.1953
- 582.1979

Chemical formula: C28H27O6N7Na = 580.1915

Expected RDBE: 1.4481 ppm

582.1979
Figure S14-1. $^1$H NMR spectrum (600MHz, DMSO-d$_6$) of compound 3n
Figure S14-2. $^{13}$C NMR spectrum (150MHz, DMSO-d$_6$) of compound 3n
Figure S14-3. HR MS of compound 3n

$\text{C}_{30}\text{H}_{32}\text{O}_{5}\text{N}_{6} \text{Na} = 579.2326$

$0.9945 \text{ ppm}$

$\text{RT:} 0.17$
$\text{AV:} 1$
$\text{NL:} 8.84 \times 10^{5}$
Figure S15-1. $^1$H NMR spectrum (600MHz, DMSO-d$_6$) of compound 3o
Figure S15-2. $^{13}$C NMR spectrum (150MHz, DMSO-d$_6$) of compound 3o
Figure S15-3. HR MS of compound 3o

534.0 534.5 535.0 535.5 536.0 536.5 537.0 537.5 538.0 538.5 539.0
m/z

Relative Abundance

535.2069  C28H28O4N6Na = 535.2064  17.5 RDBE  0.8997 ppm

536.2100

537.2130
Figure S16-1. $^1$H NMR spectrum (400MHz, DMSO-$d_6$) of compound 3p
Figure S16-2. $^{13}$C NMR spectrum (100MHz, DMSO-d$_6$) of compound 3p
Figure S16-3. HR MS of compound 3p

[Graph showing HR MS data with peaks at m/z 603.1945 and 604.1974 with corresponding formulas and masses.]
Figure S17-1. $^1$H NMR spectrum (400MHz, DMSO-d$_6$) of compound 3q
Figure S17-2. $^{13}$C NMR spectrum (100MHz, DMSO-d$_6$) of compound 3q
Figure S17-3. HR MS of compound 3q
Figure S18-1. \textsuperscript{1}H NMR spectrum (400MHz, DMSO-\textit{d₆}) of compound 3r
Figure S18-2. $^{13}$C NMR spectrum (100MHz, DMSO-d$_6$) of compound 3r
Figure S18-3. HR MS of compound 3r
Figure S19-1. $^1$H NMR spectrum (600MHz, DMSO-d$_6$) of compound 3s
Figure S19-2. $^{13}$C NMR spectrum (150MHz, DMSO-$d_6$) of compound 3s
Figure S19-3. HR MS of compound 3s

- m/z 562.0
- m/z 563.2381
- m/z 564.2413
- m/z 565.2443

C30H32O4N6Na = 563.2377
17.5 RDBE
0.7372 ppm