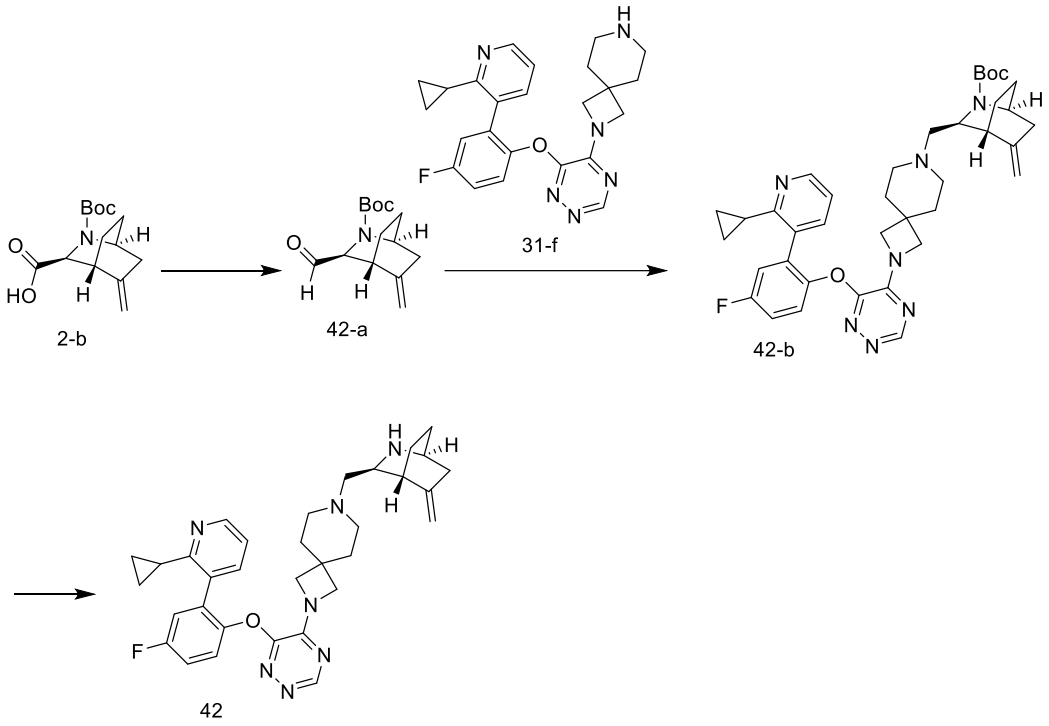


Step 1: Preparation of compound 42-a

Intermediate 2-b (100 mg), DMAP (304 mg), and dichloromethane (5 mL) were added to a reaction flask, and the mixture was stirred at 25 °C for 10 min. 1-(Trifluoroacetyl)-4-(dimethylamino)pyridinium trifluoroacetate (100 mg), and pinacolborane (53 mg) were then added in sequence, and the resulting mixture was stirred at 25 °C for 10 min. Water (10 mL) was added to the reaction solution to quench the reaction, and the mixture was extracted with dichloromethane. The organic phases were combined, dried, filtered, and concentrated to give intermediate 42-a (30 mg).

Step 2: Preparation of compound 42-b

Intermediate 31-f (30 mg), intermediate 42-a (22 mg), and methanol (5 mL) were added to a reaction flask, and the mixture was stirred at 25 °C for 10 min. Sodium cyanoborohydride (13 mg) and glacial acetic acid (1 drop) were then added in sequence, and the resulting mixture was stirred at 25 °C for 2 h. Water (10 mL) was added to the reaction solution to quench the reaction, and the mixture was extracted with dichloromethane. The organic phases were combined, dried, filtered, and concentrated to give intermediate 42-b (30 mg).

Step 3: Preparation of compound 42

Intermediate 42-b (30 mg), trifluoroacetic acid (2 mL), and dichloromethane (5 mL) were added to a reaction flask, and the mixture was stirred at 25 °C for 30 min. After the reaction was completed as detected by TLC, the mixture was concentrated, purified, and separated to give compound 42 (10 mg). ESI-MS: m/z = 568.30$[M+H]^+$.

^{1}H-NMR ($CDCl_3$): δ_H 8.42-8.43 (2H, m), 7.45 (1H, dd, J = 4.68, 8.88 Hz), 7.37 (1H, d, J = 6.50 Hz), 7.17 (1H, dt, J = 2.95, 8.39 Hz), 7.09 (1H, dd, J = 3.00, 8.35 Hz), 7.02 (1H, dd, J = 4.88, 7.43 Hz), 4.93 (1H, s), 4.82 (1H, s), 3.65-3.72 (3H, m), 3.42-3.47 (3H, m), 2.81 (1H, d, J = 17.56 Hz), 2.66 (1H, t, J = 11.40 Hz), 2.26-2.48 (7H, m), 1.94-2.01 (4H, m), 1.62-1.75 (5H, m), 0.99 (1H, m), 0.93 (1H, m), 0.81 (1H, m), 0.47 (1H, m).

Example 43: Preparation of Compound 43