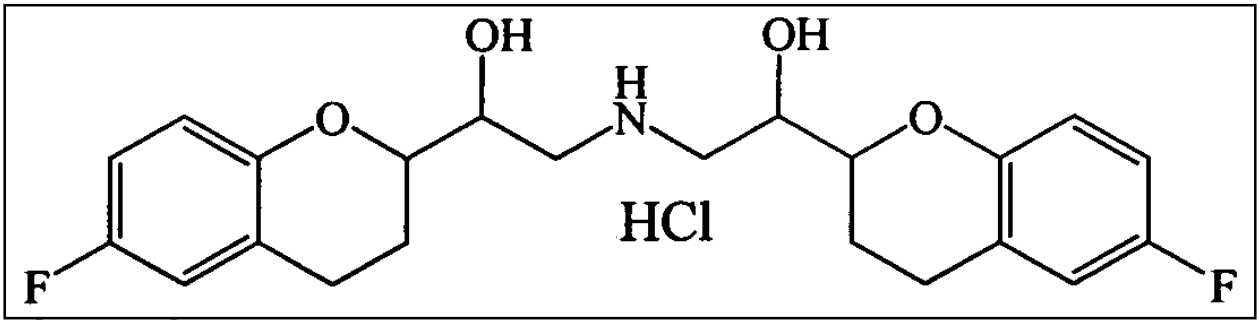
Nebivolol Hydrochloride
10.9 and 5.45 mg Tablets

Structure:



Standards:

High Standard:

The high limit is 115%; therefore the concentration of the high standard = (3.63 mg/mL X 1.15 = 4.18 mg/mL. Weigh approximately 16.7 mg of standard. If you weighed 16.8 mg of standard, dissolve it in: (16.8 mg)/(4.18 mg/mL) = 4.02 mL of methanol. This makes the high standard solution concentration equal to 4.18 mg/mL.

Low Standard:

The low limit is 85%; therefore the concentration of the low standard = (3.63 mg/mL X 0.85 = 3.09 mg/mL. Dilute 1.00 mL of high standard to 1.35 mL by adding 0.35 mL of methanol (1.15/0.85 = 1.35).

Spotting:

Spot on the 5 X 10 cm silica gel TLC aluminium plate with 3.00 µL aliquots as follows:

Left spot	low standard (85%) = 9.27 µg
Center Spot	100% sample = 10.9 µg
Right Spot	high standard (115%) = 12.5 µg

Development:

Mix 34.0 mL of ethyl acetate, 4.00 mL of methanol, and 2.00 mL concentrated ammonia. Develop the plate in a small glass chamber with approximately 20.0 mL of this solution until the solvent front reaches within 1 cm of the top of the TLC plate.

(R_f = 0.42)

Detection:

UV:

Dry the plate and observe under ultraviolet light at 254 nm. Observe the intensities and the sizes of the spots.

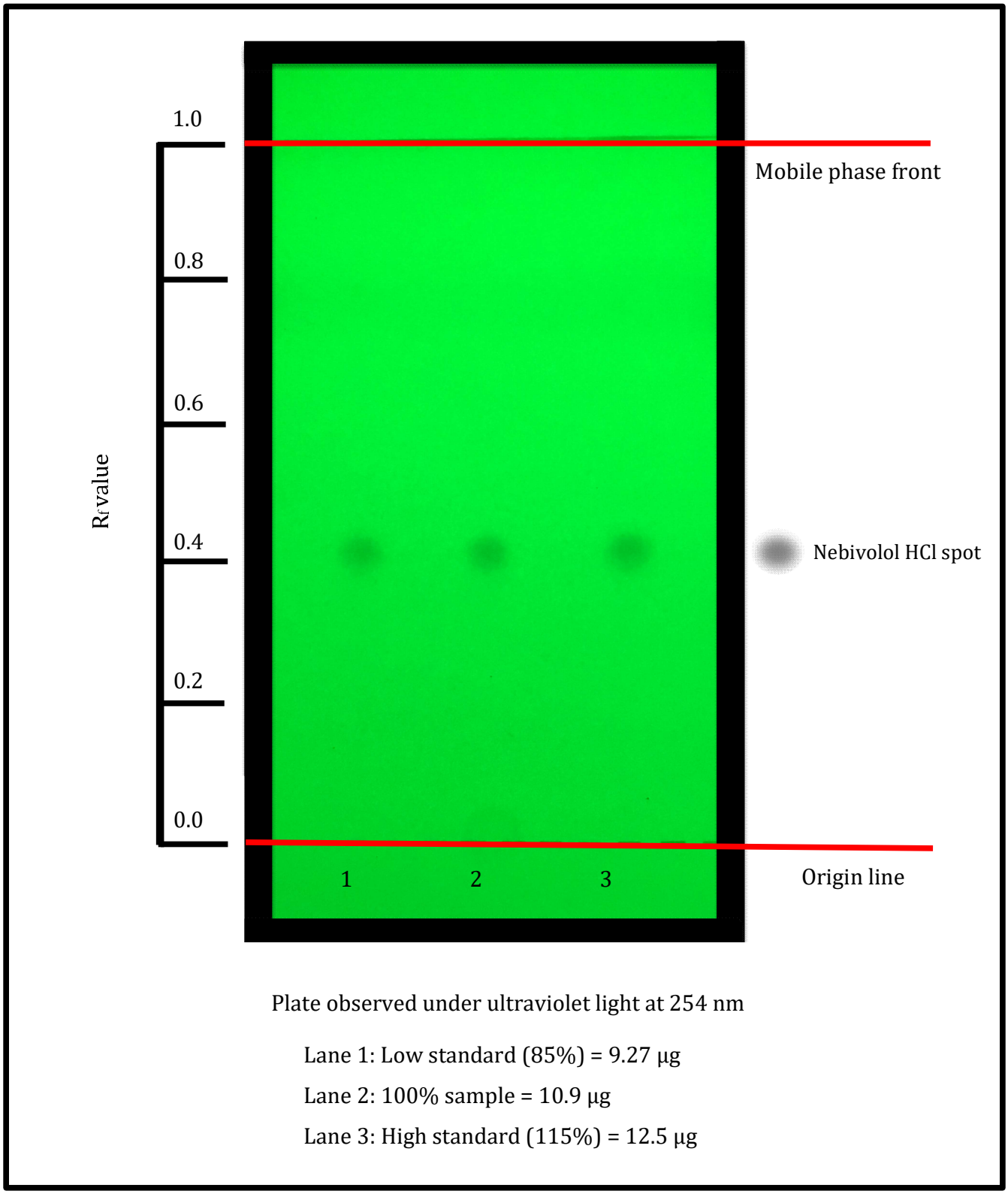


Plate observed under ultraviolet light at 254 nm

Lane 1: Low standard (85%) = 9.27 µg

Lane 2: 100% sample = 10.9 µg

Lane 3: High standard (115%) = 12.5 µg

Developed and tested by Kaitlin Nguyen and Joseph Sherma
Department of Chemistry, Lafayette College, Easton, PA, USA
July 2017
Kaitlin Nguyen's EXCEL Scholar research was supported by a Camille and Henry Dreyfus Foundation Senior Scientist Mentor Program award to Professor Sherma