

Supplemental Material

Synthesis of (2S,3R)-5,7-bis(benzyloxy)-2-(3,4,5-tris(benzyloxy)phenyl)chroman-3-yl 3,4,5-tris(benzyloxy)-2-fluorobenzoate (**4a**).

Under an N₂ atmosphere, to stirred solution of **3a** (2.2 g, 4.761 mmol, 1.2 eq.) in DCM (10 mL) was added oxalyl chloride (2.1 mL, 19.840 mmol, 5 eq.) and two drop of DMF at 0 °C. The reaction mixture was stirred at RT for 3 h. After this time, the reaction mixture was concentrated under reduced pressure to get acid chloride. The obtained acid chloride was added to a solution of (2S,3R)-5,7-bis(benzyloxy)-2-(3,4,5-tris(benzyloxy)phenyl)chroman-3-ol (3.0 g, 3.968 mmol, 1 eq.), DMAP (1.93 g, 15.870 mmol, 4 eq.) and Et₃N (2.2 mL, 15.870 mmol, 4 eq.) in CH₂Cl₂ (10 mL) at 0 °C. Then the reaction mixture was stirred at RT 16 h. Finally, the reaction was quenched with saturated aqueous NaHCO₃ solution (5 mL). The organic layer was separated, and the aqueous layer was extracted with CH₂Cl₂ (30 mL). The combined organic phase was dried over MgSO₄, filtered, and concentrated under reduced pressure. The obtained crude compound was purified by flash column chromatography using EtOAc and hexane as eluent to get **4a** (1.2 g, 70% yield). Analytical Data: ¹H NMR (400 MHz, DMSO-d₆) δ 7.44–7.22 (m, 40H), 7.04 (d, J = 5.6 Hz, 1H), 6.90 (s, 2H), 6.34 (s, 1H), 6.28 (s, 1H), 5.48 (d, J = 5.2 Hz, 1H), 5.18 (d, J = 7.2 Hz, 1H), 5.12 (s, 2H), 5.06 (s, 2H), 5.01 (s, 4H), 4.94 (s, 6H), 4.87 (s, 2H), 2.98 (dd, J = 5.2 Hz, 1H), 2.81 (dd, J = 7.6 Hz, 1H), ¹⁹F NMR (400 MHz, DMSO-d₆) δ -133.68. LCMS: (M-H⁺): m/z: 1197.5

Synthesis of (2S,3R)-5,7-dihydroxy-2-(3,4,5-trihydroxyphenyl)chroman-3-yl 2-fluoro-3,4,5-trihydroxybenzoate (**1a**).

To a solution of intermediate **4a** (2.0 g, 1.670 mmol, 1 eq.), in 20 mL of (1:1; THF: MeOH), palladium hydroxide on carbon powder, Pd(OH)₂ (20 wt. %, 2.0 g) was added at RT, and the reaction mixture was stirred under hydrogen atmosphere for 16 h. Then the mixture was passed through a pad of celite to remove the catalyst. The filtrate was concentrated under reduced pressure. Obtained crude compound was purified by Prep-HPLC to obtain **1a** as an off-white color solid (0.46 g, 60% yield). Analytical Data: ¹H NMR (400 MHz, DMSO-d₆): 6.67 (d, J = 6.4 Hz, 1H), 6.24 (s, 2H), 5.90 (d, J = 2.4 Hz, 1H), 5.79 (d, J = 2.4 Hz, 1H), 5.29 (q, J = 5.2 Hz, 1H), 5.03 (d, J = 4.8 Hz, 1H), 2.58 (m, 2H), ¹⁹F NMR (400 MHz, DMSO-d₆) δ -140.76. LCMS: (M-H⁺): m/z: 475.20.

Synthesis of (2S,3R)-5,7-bis(benzyloxy)-2-(3,4,5-tris(benzyloxy)phenyl)chroman-3-yl 3,4,5-tris(benzyloxy)-2,6-difluorobenzoate (**4b**)

Under an N₂ atmosphere, to a stirred solution of **3b** (0.35 g, 0.735 mmol, 1 eq.) in DCM (8 mL) was added oxalyl chloride (0.31 mL, 7.350 mmol, 10 eq.) in dry DCM (8 mL) and two drops of DMF at 0 °C. The reaction mixture was stirred at RT for 2 h. Then excess oxalyl chloride was concentrated and the residue was dried to get acid chloride. This solution was added dropwise to a solution of **2** (0.44 g, 0.588 mmol, 0.8 eq.), DMAP (0.448 g, 3.675 mmol, 5 eq.) and TEA (0.53 mL, 3.675 mmol, 5 eq.) in DCM (12 mL) at 0 °C. The mixture was stirred at RT for overnight. After this time, saturated NaHCO₃ aqueous solution was added. The organic layer was separated and the aqueous layer was extracted with DCM. Combined organic phase was dried over MgSO₄ filtered and evaporated. The obtained crude compound was purified by flash column chromatography, eluted with 12% EtOAc in hexane to obtain **4b** as a red solid

(0.109 g, 12% yield). Analytical Data: ^1H NMR (400 MHz, DMSO- d_6) δ 7.41–7.21 (m, 40H), 6.86 (s, 2H), 6.40 (d, J = 2 Hz, 1H), 6.26 (d, J = 1.6 Hz, 1H), 5.63 (d, J = 5.2 Hz, 1H), 5.17 (s, 4H), 5.11 (s, 2H), 5.06 (s, 4H), 5.02 (d, J = 5.2 Hz, 1H), 4.95 (s, 4H), 4.98 (s, 2H), 2.80 (dd, J = 4.0 Hz, 2H); ^{19}F NMR (400 MHz, DMSO- d_6) δ -133.17. LC-MS: (M- H^+): m/z : 1215.47

Synthesis of (2S,3R)-5,7-dihydroxy-2-(3,4,5-trihydroxyphenyl)chroman-3-yl 2,6-difluoro-3,4,5-trihydroxybenzoate (**1b**)

To a solution of **4b** (0.1 g, 0.082 mmol, 1 eq.) in 10 mL of 1:1 THF: MeOH was added palladium hydroxide (20 wt. %, 0.1 g) at RT and the reaction mixture was stirred under hydrogen atmosphere for 16 h. Then the mixture was passed through a pad of celite to remove the catalyst. The filtrate was concentrated under vacuum. Obtained crude compound was purified by Prep-HPLC to obtain **1b** as an off-white color solid (0.026 g, 65% yield). Analytical Data: ^1H NMR (400 MHz, DMSO- d_6): δ 6.23 (s, 2H), 5.89 (d, J = 2.0 Hz, 1H), 5.77 (d, J = 2.0 Hz, 1H), 5.33 (q, J = 4.8 Hz, 1H), 5.01 (d, J = 4.8 Hz, 1H), 2.58 (dd, J = 4.0 Hz, 2H); ^{19}F NMR (400 MHz, DMSO- d_6) δ -145.35. LC-MS: (M- H^+): m/z : 494.95.

Synthesis of (2S,3R)-5,7-bis(benzyloxy)-2-(3,4,5-tris(benzyloxy)phenyl)chroman-3-yl 3,4-bis(benzyloxy)-2-

fluoro-5-methoxybenzoate (**4c**)

To a solution of **3c** (1.13 g, 2.97 mmol, 1.5 eq.) in DCM (12 mL) was added oxalyl chloride (0.9 mL, 9.92 mmol, 5.0 eq.) and 2 drops of dry DMF at 0 °C. The mixture was stirred at RT for 2 h. After the completion of acid-chloride formation, the volatile portion was concentrated from the reaction mixture. The obtained acid chloride was added to a mixture of (2S,3R)-5,7-bis(benzyloxy)-2-(3,4,5-tris(benzyloxy)phenyl)chroman-3-ol (1.5 g, 1.98 mmol, 1.0 eq.), DMAP (0.96 g, 7.93 mmol, 4.0 eq.) and TEA (1.2 mL, 7.93 mmol, 4.0 eq.) in CH_2Cl_2 (20 mL) at 0 °C. The resulting mixture was stirred at RT for 16 h. The reaction mixture was diluted with H_2O (50 mL) and extracted with CH_2Cl_2 (2 X 100 mL). The combined organic layer was washed with brine (50 mL), dried over Na_2SO_4 , filtered and concentrated. The residue was purified by flash column chromatography on silica gel (PE/EA = 6/1) to give **4c** (1.51 g, 68% yield) as a white solid. Analytical Data: ^1H NMR (400 MHz, CDCl_3) δ 7.50–7.20 (m, 35H), 7.00 (d, J = 6.0 Hz, 1H), 6.79 (s, 2H), 6.32 (d, J = 2.0 Hz, 1H), 6.30 (d, J = 2.0 Hz, 1H), 5.50 (q, J = 7.6 Hz, 1H), 5.09 (d, J = 6.0 Hz, 1H), 5.08–4.98 (m, 14H), 3.76 (s, 3H), 3.17 (dd, J = 16.8, 11.2 Hz, 1H), 2.88 (q, J = 8.0, 1H).

Synthesis of (2S,3R)-5,7-dihydroxy-2-(3,4,5-trihydroxyphenyl)chroman-3-yl 2-fluoro-3,4-dihydroxy-5-methoxybenzoate (**1c**)

To a mixture of **4c** (1.50 g, 1.33 mmol, 1.0 eq.) in THF (10 mL) and MeOH (10 mL) was added $\text{Pd}(\text{OH})_2/\text{C}$ (20 wt. %, 190 mg). The mixture was stirred at room temperature under H_2 atmosphere overnight. The reaction mixture was filtered, and the filtrate was concentrated. The residue was purified by prep-HPLC to give **1c** (0.335 g, 51% yield) as an off-white solid. Analytical Data: ^1H NMR (400 MHz, DMSO- d_6) δ 9.11 (bs, 7H), 6.60 (d, J = 6.0 Hz, 1H), 6.31 (s, 2H), 5.92 (d, J = 2.4 Hz, 1H), 5.78 (d, J = 2.0 Hz, 1H), 5.18 (q, J = 6.0 Hz, 1H), 4.95 (d, J = 6.4 Hz, 1H), 3.68 (s, 3H), 2.78 (dd, J = 16.4, 5.2 Hz, 1H), 2.88 (dd, J = 16.0, 6.8 Hz, 1H).

Synthesis of (2S,3R)-5,7-bis(benzyloxy)-2-(3,4,5-tris(benzyloxy)phenyl)chroman-3-yl 4,5-bis(benzyloxy)-2-fluoro-3-methoxybenzoate (**4d**)

Under an N₂ atmosphere, to a stirred solution of **3d** (0.265 g, 0.693 mmol, 1 eq.) in DCM (5 mL) was added oxalyl chloride (0.22 mL, 2.665 mmol, 5 eq.) and two drops of DMF at 0 °C. The reaction mixture was stirred at RT for 3 h. The excess oxalyl chloride was removed by distillation, and the residue was dried to give acid chloride. The generated acid chloride was added dropwise to a solution of intermediate **2** (0.203 g, 0.533 mmol, 1 eq.), DMAP (0.325 g, 2.665 mmol, 5 eq.) and TEA (0.36 mL, 2.665 mmol, 5 eq.) in DCM (6 mL) at 0 °C. The mixture was stirred at RT for overnight. After this time, saturated NaHCO₃ aqueous solution was added to the reaction mass. Then organic layer was separated, and the aqueous layer was extracted with DCM. Combined organic phases was dried over MgSO₄, filtered and concentrated under reduced pressure. The obtained crude compound was purified by flash column chromatography, eluted with 15% EtOAc in hexane, to afford desired compound **4d** as a light yellow solid (0.506 g, 64% yield). Analytical Data: ¹H NMR (400 MHz, DMSO-d₆) δ 7.43–7.21 (m, 35H), 7.01 (d, J = 9.6 Hz, 1H), 6.89 (s, 2H), 6.42 (s, 1H), 6.27 (s, 1H), 5.51 (d, J = 5.2 Hz, 1H), 5.18 (d, J = 7.2 Hz, 1H), 5.11 (s, 2H), 5.06 (s, 2H), 5.04 (s, 4H), 4.97 (s, 4H), 4.87 (s, 2H), 3.75 (s, 3H), 2.62 (dd, J = 7.6 Hz, 2H). LC-MS: (M-H⁺): m/Z: 1121.1.

Synthesis of (2S,3R)-5,7-dihydroxy-2-(3,4,5-trihydroxyphenyl)chroman-3-yl 2-fluoro-4,5-dihydroxy-3-methoxybenzoate (**1d**)

To a solution of **4d** (0.5 g, 0.351 mmol, 1 eq.) in 8 mL of 1:1 THF:MeOH was added palladium hydroxide (20 wt. %, 0.5 g) at RT and was stirred under H₂ atmosphere for 16 h. Then the mixture was passed through a pad of celite to remove the catalyst. The filtrate was concentrated under vacuum. The crude compound was purified by Prep-HPLC to obtain desired compound **1d** as an off-white color solid (0.058 g, 27% yield). Analytical Data: ¹H NMR (400 MHz, DMSO-d₆): 9.02 (s, 5H), 5.88 (d, J = 6.8 Hz, 1H), 6.25 (s, 2H), 5.91 (d, J = 2.0 Hz, 1H), 5.79 (d, J = 2.4 Hz, 1H), 5.28 (q, J = 5.2 Hz, 1H), 5.01 (d, J = 5.2 Hz, 1H), 3.73 (s, 3H), 2.58 (dd, J = 4 Hz, 2H). LCMS: (M-H⁺): m/Z: 490.1.

Synthesis of (2S,3R)-5,7-bis(benzyloxy)-2-(3,4,5-tris(benzyloxy)phenyl)chroman-3-yl 3,4-bis(benzyloxy)-2,6-difluoro-5-methoxybenzoate (**4e**)

Under an N₂ atmosphere, to a stirred solution of **3e** (0.6 g, 1.637 mmol, 1 eq.) in DCM (5 mL) was added oxalyl chloride (1.0 mL, 8.168 mmol, 5 eq.) and two drops of DMF at 0 °C. The reaction mixture was stirred at RT for 1 h. After this time, the reaction mixture was concentrated under reduced pressure to get the correspondent acid chloride. Obtained acid chloride was added to a solution of intermediate **2** (1.0 g, 1.637 mmol, 1 eq.), DMAP (0.79 g, 6.548 mmol, 4 eq.) and TEA (0.9 mL, 6.548 mmol, 4 eq.) in DCM (12 mL) at 0 °C. Then the reaction mixture was stirred at RT 16 h. Finally, the reaction was quenched with saturated aqueous NaHCO₃ solution (5 mL). The organic layer was separated and the aqueous layer was extracted with DCM (30 mL). Combined organic phase was dried over MgSO₄, filtered and concentrated under reduced pressure. Obtained crude compound was purified by flash column chromatography (EtOAc in hexane) to get intermediate **4e** as a yellow solid (0.7 g, 23% yield). Analytical Data: ¹H NMR (400 MHz, DMSO-d₆) δ 7.44–7.25 (m, 35H), 6.87 (s, 2H), 6.42 (d, J = 2 Hz, 1H), 6.28 (d, J = 1.6 Hz, 1H), 5.48 (d, J = 5.2 Hz, 1H), 5.17 (d, J = 7.2 Hz, 1H), 5.14 (s, 2H), 5.12 (s, 2H), 5.07 (s, 2H), 5.03 (s, 4H), 4.95 (s, 2H), 4.91 (s, 2H), 3.77 (s, 3H), 2.84 (dd, J = 7.6 Hz, 2H); ¹⁹F NMR (400 MHz, DMSO-d₆) δ -134.46, 134.45, 133.59, 133.58. LCMS: (M-H⁺): m/Z: 1139.

Synthesis of (2S,3R)-5,7-dihydroxy-2-(3,4,5-trihydroxyphenyl)chroman-3-yl 2,6-difluoro-3,4-dihydroxy-5-isopropoxybenzoate (**1e**)

To a solution of intermediate **4e** (0.4 g, 0.351 mmol, 1 eq.) in 8 mL of THF:MeOH (1:1) was added palladium hydroxide (20 wt. %, 0.40 g) at RT and the reaction mixture was stirred under hydrogen atmosphere for 16 h. Then the mixture was passed through a pad of celite to remove the catalyst. The filtrate was concentrated under vacuum. Obtained crude compound was purified by Prep-HPLC to obtain the title compound **1e** as an off-white color solid (0.075 g, 29% yield). Analytical Data: ^1H NMR (400 MHz, DMSO- d_6): 9.05 (bs, 7H), 6.26 (s, 2H), 5.92 (d, $J = 2.0$ Hz, 1H), 5.80 (d, $J = 2.0$ Hz, 1H), 5.38 (q, $J = 5.2$ Hz, 1H), 5.03 (d, $J = 5.2$ Hz, 1H), 3.73 (s, 3H), 2.56 (t, $J = 4$ Hz, 2H); ^{19}F NMR (400 MHz, DMSO- d_6) δ -141.56, -141.54, -138.98, -138.91. LCMS: (M- H^+): m/z: 508.91

Synthesis of (2S,3R)-5,7-bis(benzyloxy)-2-(3,4,5-tris(benzyloxy)phenyl)chroman-3-yl 3,4-bis(benzyloxy)-5-(difluoromethoxy)benzoate (**4f**)

Under an N_2 atmosphere, to a stirred solution of **3f** (0.71 g, 1.785 mmol, 1.5 eq.) in DCM (6 mL) was added oxalyl chloride (0.5 mL, 5.950 mmol, 5 eq.) and two drops of DMF at 0 °C. The reaction mixture was stirred at RT for 1 h. After this time, the reaction mixture was concentrated under reduced pressure to get acid chloride. The obtained acid chloride was added to a solution of intermediate **2** (1.1 g, 1.190 mmol, 1 eq.), DMAP (0.58 g, 4.760 mmol, 4 eq.) and TEA (0.7 mL, 4.760 mmol, 4 eq.) in DCM (5 mL) at 0 °C. Then the reaction mixture was stirred at RT for 16 h. Finally, the reaction was quenched with saturated NaHCO_3 aqueous solution (5 mL). The organic layer was separated and the aqueous layer was extracted with DCM (30 mL). The combined organic phase was dried over MgSO_4 filtered and concentrated under reduced pressure. The obtained crude compound was purified by flash column chromatography (EtOAc in hexane) to get **4f** as a light yellow solid (1 g, 75% yield). Analytical Data: ^1H NMR (400 MHz, DMSO- d_6): δ 7.45–7.21 (m, 36H), 7.14 (s, 1H), 6.94 (s, 2H), 6.45 (d, $J = 2$ Hz, 1H), 6.29 (d, $J = 1.6$ Hz, 1H), 5.44 (d, $J = 5.2$ Hz, 1H), 5.22 (d, $J = 7.2$ Hz, 1H), 5.20 (s, 2H), 5.18 (s, 2H), 5.14 (s, 2H), 5.12 (s, 2H), 5.08 (s, 2H), 4.96 (s, 2H), 4.87 (s, 2H), 3.04 (dd, $J = 7.2$ Hz, 2H), 2.82 (dd, $J = 7.2$ Hz, 2H); ^{19}F NMR (400 MHz, DMSO- d_6) δ -81.7, -81.38. LCMS: (M- H^+): m/z: 1139.53

Synthesis of (2S,3R)-5,7-dihydroxy-2-(3,4,5-trihydroxyphenyl)chroman-3-yl 3-(difluoromethoxy)-4,5-dihydroxybenzoate (**1f**)

To a solution of **4f** (1 g, 0.878 mmol, 1 eq.) in 8 mL THF: MeOH (1:1) was added palladium hydroxide (20 wt. %, 1.0 g) at RT and the reaction mixture was stirred under hydrogen atmosphere for 16 h. Then the mixture was passed through a pad of celite to remove the catalyst. The filtrate was concentrated under vacuum. Obtained crude compound was purified by Prep-HPLC to obtain title compound **1f** as an off-white color solid (0.104 g, 31% yield). Analytical Data: ^1H NMR (400 MHz, DMSO- d_6): 9.09 (bs, 7H), 6.26 (s, 2H), 5.92 (d, $J = 2.0$ Hz, 1H), 5.80 (d, $J = 2.0$ Hz, 1H), 5.38 (q, $J = 5.2$ Hz, 1H), 5.03 (d, $J = 5.2$ Hz, 1H), 3.73 (s, 3H), 2.62 (dd, $J = 4$ Hz, 1H), 2.55 (dd, $J = 4$ Hz, 1H); ^{19}F NMR (400 MHz, DMSO- d_6) δ -81.11. LCMS: (M- H^+): m/z: 508.88.

Synthesis of (2S,3R)-5,7-bis(benzyloxy)-2-(3,4,5-tris(benzyloxy)phenyl)chroman-3-yl 3,4-bis(benzyloxy)-5-(difluoromethoxy)-2-fluorobenzoate (**4g**)

To a solution of **3g** (0.215 g, 0.51 mmol, 1.0 eq.) in DCM (5 mL) was added $(\text{COCl})_2$ (0.25 mL, 2.57 mmol, 5.0 eq.) and 2 drops of dry DMF at 0 °C. The mixture was stirred at RT for

1 h. After completion of acid-chloride formation, the solvent was evaporated from the reaction mixture and dried under reduced pressure. To this was added a mixture of intermediate **2** (0.39 g, 0.51 mmol, 1.0 eq.), DMAP (0.250 g, 2.05 mmol, 4.0 eq.) and TEA (0.3 mL, 2.05 mmol, 4.0 eq.) in DCM (5 mL) at 0 °C. The resulting mixture was stirred at RT for 16 h. The reaction mixture was diluted with H₂O (30 mL) and extracted with DCM (2 X 50 mL). The combined organic layers were washed with brine (30 mL), dried over Na₂SO₄, filtered and concentrated. The residue was purified by flash column chromatography on silica gel (Petroleum ether/EtOAc, 6/1) to give **4g** (0.21 g, 64% yield) as a white solid. Analytical Data: ¹H NMR (400 MHz, CDCl₃) δ 7.51-7.30 (m, 33H), δ 7.27-7.21 (m, 3H), 6.77 (s, 2H), 6.34 (t, J = 74.0 Hz, 1H), 6.32 (d, J = 2.0 Hz, 1H), 6.29 (d, J = 2.0 Hz, 1H), 5.51 (q, J = 7.2 Hz, 1H), 5.12-4.98 (m, 15H), 3.14 (dd, J = 10.8, 5.6 Hz, 1H), 3.14 (dd, J = 8.8, 8.0 Hz, 1H).

(2S,3R)-5,7-dihydroxy-2-(3,4,5-trihydroxyphenyl)chroman-3-yl 5-(difluoromethoxy)-2-fluoro-3,4-dihydroxybenzoate (**1g**)

To a mixture of **4g** (0.2 g, 0.17 mmol, 1.0 eq.) in THF (2.5 mL) and MeOH (2.5 mL) was added Pd(OH)₂/C (20 wt. %, 120 mg). The mixture was stirred at room temperature under H₂ atmosphere for overnight. The reaction mixture was passed through a pad of celite and the filtrate was concentrated. The residue was purified by prep-HPLC to give **1g** (40 mg, 44% yield) as a pale pink solid. Analytical Data: ¹H NMR (400 MHz, DMSO-d₆) δ 8.98 (bs, 7H), 6.97 (t, J = 74.4 Hz, 1H), 6.97 (d, J = 6.4 Hz, 1H), 6.25 (s, 2H), 5.91 (d, J = 2.4 Hz, 1H), 5.78 (d, J = 2.4 Hz, 1H) 5.29 (q, J = 5.2 Hz, 1H), 5.02 (d, J = 5.6 Hz, 1H), 2.62 (d, J = 5.2 Hz, 2H).

Synthesis of (2S,3R)-5,7-bis(benzyloxy)-2-(3,4,5-tris(benzyloxy)phenyl)chroman-3-yl 3,4-bis(benzyloxy)-2,6-difluoro-5-isopropoxybenzoate (**4h**)

Under an N₂ atmosphere, to a stirred solution of **3h** (0.9 g, 2.102 mmol, 1 eq.) in DCM (8 mL) was added oxalyl chloride (0.53 mL, 6.308 mmol, 3 eq.) and two drops of DMF at 0 °C. The reaction mixture was stirred at RT for 1 h. After this time, the reaction mixture was concentrated under reduced pressure to get acid chloride. The obtained acid chloride was added to a solution of **2** (0.079 g, 1.051 mmol, 0.5 eq.), DMAP (1 g, 8.411 mmol, 4 eq.) and TEA (1.1 mL, 8.411 mmol, 4 eq.) in DCM (15 mL) at 0 °C. Then the reaction mixture was stirred at RT 16 h. Finally, the reaction was quenched with saturated aqueous NaHCO₃ solution (5 mL). The organic layer was separated, and the aqueous layer was extracted with DCM (30 mL). The combined organic phase was dried over MgSO₄, filtered, and concentrated under reduced pressure. The obtained crude compound was purified by flash column chromatography (EtOAc in hexane) to get **4h** as a pale green solid (0.4 g, 32% yield). LCMS: (M-H⁺): m/z: 1167.43

Synthesis of (2S,3R)-5,7-dihydroxy-2-(3,4,5-trihydroxyphenyl)chroman-3-yl 2,6-difluoro-3,4-dihydroxy-5-isopropoxybenzoate (**1h**)

To a solution of **4h** (0.39 g, 0.334 mmol, 1 eq.), in 10 mL of THF:MeOH (1:1) was added palladium hydroxide (20 wt. %, 0.039 g) at RT, and the reaction mixture was stirred under hydrogen atmosphere for 16 h. Then the mixture was passed through a pad of celite to remove the catalyst. The filtrate was concentrated under a vacuum. The obtained crude compound was purified by Prep-HPLC to get **1h** as an off-white color solid (0.094 g, 52% yield). Analytical Data: ¹H NMR (400 MHz, DMSO-d₆): 9.06 (bs, 7H), 6.24 (s, 2H), 5.90 (d, J = 2.0 Hz, 1H), 5.78 (d, J = 2.4 Hz, 1H), 5.36 (q, J = 4.8 Hz, 1H), 5.02 (d, J = 4.8 Hz, 1H), 4.28-4.22 (s, 1H), 2.60 (d,

J = 4.0 Hz, 2H), 1.19 (s, 3H), 1.17 (s, 3H); ^{19}F NMR (400 MHz, DMSO- d_6) δ -139.80, -138.95.
LC-MS: (M-H $^+$): m/Z: 536.96.