Open saccharin-based secondary sulfonamides as potent and selective inhibitors of cancer-related carbonic anhydrase IX and XII isoforms

Melissa D’Ascenzio\textsuperscript{a,b}, Paolo Guglielmi\textsuperscript{b,*}, Simone Carradori\textsuperscript{c}, Daniela Secci\textsuperscript{b}, Rosalba Florio\textsuperscript{c}, Adriano Mollica\textsuperscript{c}, Mariangela Ceruso\textsuperscript{d}, Atilla Akdemir\textsuperscript{e}, Anatoly P. Sobolev\textsuperscript{f}, Claudiu T. Supuran\textsuperscript{d,g,*}

\textsuperscript{a}School of Life Sciences, University of Dundee, Carnelley Building, Dundee DD1 4HN, Scotland
\textsuperscript{b}Dipartimento di Chimica e Tecnologie del Farmaco, Sapienza University of Rome, P.le A. Moro 5, 00185 Rome, Italy
\textsuperscript{c}Department of Pharmacy, “G. D’Annunzio” University of Chieti-Pescara, Via dei Vestini 31, 66100 Chieti, Italy
\textsuperscript{d}Laboratorio di Chimica Bioinorganica, Università degli Studi di Firenze, Via della Lastruccia 3, 50019 Sesto Fiorentino (Florence), Italy
\textsuperscript{e}Bezmialem Vakif University, Faculty of Pharmacy, Department of Pharmacology, Vatan Caddesi, 34093 Fatih, Istanbul, Turkey
\textsuperscript{f}Institute of Chemical Methodologies, Magnetic Resonance Laboratory “Annalaura Segre”, National Research Council, Via Salaria km 29.300, 00015 Monterotondo (Rome), Italy
\textsuperscript{g}Neurofarba Dept., Section of Pharmaceutical and Nutriceutical Sciences, Università degli Studi di Firenze, Via U. Schiff 6, 50019 Sesto Fiorentino (Florence), Italy

*Corresponding authors: Dr. Paolo Guglielmi: Tel/fax: +39 06 49913975; e-mail: paolo.guglielmi@uniroma1.it; Prof. Claudiu T. Supuran: Tel: +39 055 4573005; Fax: +39 055 4573385; e-mail: claudiu.supuran@unifi.it.
Figure S1. $^1$H NMR spectrum of compound 2.
Figure S2. $^{13}$C NMR spectrum of compound 2.

Figure S3. $^{19}$F NMR spectrum of compound 2.
Figure S4. $^1$H NMR spectrum of compound 6.
Figure S5. $^{13}$C NMR spectrum of compound 6.

Figure S6. $^{19}$F NMR spectrum of compound 6.
Figure S7. $^{19}$F NMR spectrum of compound 8.

Figure S8. $^1$H NMR spectrum of compound 11.
Figure S9. $^{13}$C NMR spectrum of compound 11.
Figure S10. $^{19}$F NMR spectrum of compound 11.

Figure S11. $^{19}$F NMR spectrum of compound 14.
Figure S12. $^{19}$F NMR spectrum of compound 17.

Figure S13. $^1$H NMR spectrum of compound 18.
