

# TECHNICAL DATA SHEET

## Fluorescent Imaging Reagent



### 800CW-ZOL

Catalogue Number: BV551001

\* For Laboratory Use. A product for research purposes only, not for human use.

**DESCRIPTION:** *800CW-ZOL* is a fluorescent bisphosphonate imaging reagent, which can be used for both *in vitro* and *in vivo* studies.

**CONTENTS:** Each vial contains 24 nmol of *800CW-ZOL* in lyophilized dry solid form. The reagent can be reconstituted with aqueous buffers (calcium/magnesium free PBS buffer, 0.9% NaCl solution, or many other buffers of the customers' choice with near neutral pH).

**PROPERTIES:** The physical properties of *800CW-ZOL* can be found in **Table 1** and **Figure 1**.

#### STORAGE & HANDLING:

- Upon receipt, *800CW-ZOL* should be **stored at  $\leq -20\text{ }^{\circ}\text{C}$  and protected from light**. When stored and handled properly, *800CW-ZOL* is stable for at least 18 months in dry solid form.
- Before opening the vial, check to ensure that all compounds are at the bottom of the vial.
- After reconstituting with aqueous buffers, gently swirl the solution to ensure that the solid is fully dissolved in solution.
- Once reconstituted with aqueous buffers, it is highly recommended to aliquot the solutions for longer-term use, and the aliquots should be stored at  **$4\text{ }^{\circ}\text{C}$  or  $-20\text{ }^{\circ}\text{C}$  and protected from light**.

#### IMAGING APPLICATIONS:

- *800CW-ZOL* and similar reagents were previously applied in mice, rats and rabbits studies at doses of approximately 50-100 nmol/Kg, which could be a starting point for use in other animal models.
- We also have experience using sequential fluorescent reagents, as well as multiple fluorescent reagents in a single administration; and we would be happy to provide technical advice/support if needed. Please send your technical questions to [inquiry@biovinc.com](mailto:inquiry@biovinc.com).

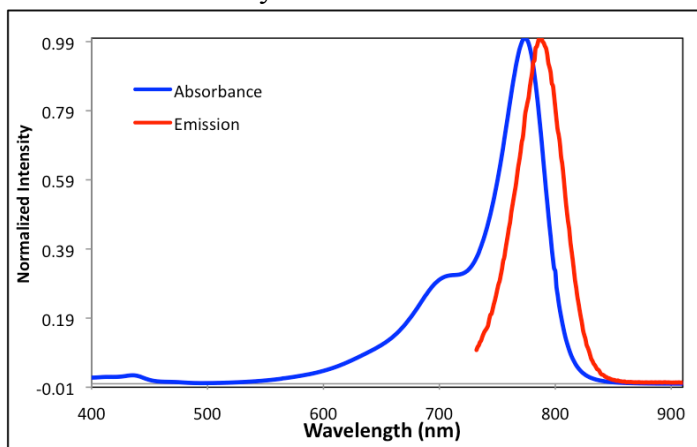
**Table 1. Properties of *800CW-ZOL***

Parameter	Value
M.W.	1332.4 g/mol
Abs Max <sup>1</sup>	774 nm
Em Max <sup>1</sup>	789 nm
Extinction Coefficient <sup>2</sup>	240,000 M <sup>-1</sup> cm <sup>-1</sup>
Purity <sup>3</sup>	> 98 %
Appearance	Green solid

<sup>1</sup>UV-VIS absorption and fluorescence emission were measured in 1X PBS buffer, pH 7.4. The maximum wavelengths shown above have  $\pm 1$  nm instrumentation error.

<sup>2</sup>The extinction coefficient for *800CW-ZOL* is assumed the same as IRDye 800CW.

<sup>3</sup>Purity is determined by reverse phase HPLC, <sup>1</sup>H NMR, and <sup>31</sup>P NMR spectroscopy.



**Figure 1.** Absorbance and emission spectra of *800CW-ZOL*, in 1X PBS buffer, pH 7.4

## SELECTED REFERENCES:

- Sun S, Blazewska KM, Kadina AP, Kashemirov BA, Duan X, Triffitt JT, Dunford JE, Russell RGG, Ebetino FH, Roelofs AJ, Coxon FP, Lundy MW, McKenna CE. [Fluorescent Bisphosphonate and Carboxyphosphonate Probes: A versatile Imaging Toolkit for Applications in Bone Biology and Biomedicine](#). 2016, *Bioconjugate Chemistry*, 27(2), 329-340.
- Junankar S, Shay G, Jurczyk J, Ali N, Down J, Pocock N, Parker A, Nguyen A, Sun S, Kashemirov B, McKenna CE, Croucher PI, Swarbrick A, Weilbaecher K, Phan TG, Rogers MJ. [Real-Time Intravital Imaging Establishes Tumor-Associated Macrophages as the Extraskelatal Target of Bisphosphonate Action in Cancer](#). 2015, *Cancer discovery*, 5(1): 35-42.
- Verhulst A, Sun S, McKenna CE, D'Haese PC. [Endocytotic Uptake of Zoledronic Acid by Tubular Cells May Explain Its Renal Effects in Cancer Patients Receiving High Doses of the Compound](#). 2015, *Plos ONE*, 10(3): e0121861.
- Bae S., Sun S., Aghaloo T., Oh JE, McKenna CE, Kang MK, Shin KH, Tetradis S, Park NH, Kim RH. [Development of osteomucosal tissue constructs in vitro and bisphosphonate localization](#), 2014, *International Journal of Molecular Medicine*, 34(2):559-563.
- Kashemirov, B.A.; Bala, J.L.F.; Chen, X.; Ebetino, F.H.; Xia, Z.; Russell, R.G.G.; Coxon, F.P.; Roelofs, A.J.; Rogers, M.J.; McKenna, C.E. [Fluorescently Labeled Risedronate and Related Analogues: "Magic Linker" Synthesis](#). 2008, *Bioconjugate Chemistry*, 19(12): 2308-2310.
- Roelofs, A.J.; Coxon, F.P.; Ebetino, F.H.; Lundy, M.W.; Henneman, Z.J.; Nancollas, G.H.; Sun, S.; Blazewska, K.M.; Bala, J.L.F.; Kashemirov, B.A.; Khalid, A.B.; McKenna, C.E.; Rogers, M.J. [Fluorescent risedronate analogues reveal bisphosphonate uptake by bone marrow monocytes and localization around osteocytes in vivo](#). 2010, *Journal of Bone and Mineral Research*, 25(3): 606-616.
- Roelofs, A.J.; Stewart, C.A.; Sun, S.; Blazewska, K.M.; Kashemirov, B.A.; McKenna C.E.; Russell, R.G.G.; Rogers, M.J., Lundy, M.W.; Ebetino F.H.; Coxon, F.P. [Analysing the skeletal distribution of fluorescently-labelled bisphosphonates and lower affinity analogues in vivo](#). 2012 *Journal of Bone and Mineral Res.* 27(4): 835-847.
- Turek, J.; Ebetino, F. H.; Lundy, M.W.; Sun, S.; Kashemirov, B.A.; McKenna, C.E.; Gallant, M.A.; Plotkin, L.I.; Bellido, T.; Duan, X.; Triffitt, J.T.; Russell, R.G.G.; Burr, D.B.; Allen, M.R. [Bisphosphonate Binding Affinity Affects Drug Distribution in Both Intracortical and Trabecular Bone of Rabbits](#). 2012, *Calcified Tissue International*, 90(3): 202-210
- Hogoku, A.; Sun, S.; Park, S.; McKenna, C.E.; Nishimura, I. [Equilibrium-dependant bisphosphonate interaction with crystalline bone mineral explains anti-resorptive pharmacokinetics and prevalenc of osteonecrosis oft he jaw in rats](#). 2013 *Bone* 53:59-68.
- Vermeer, J.A.; Jansen, I.D.; Marthi, M.; Coxon, F.P.; McKenna, C.E.; Sun, S.; de Vries, T.J.; Everts, V. [Jaw bone marrow-derived osteoclast precursors internalize more bisphosphonate than long-bone marrow precursors](#). 2013 *Bone*. 57(1):242-251.

\*For more references, please visit [www.biovinc.com/references](http://www.biovinc.com/references).

## NOTES TO CUSTOMERS:

- BioVinc's fluorescent imaging reagents are offered for research purposes only, and are not intended for human use.
- The purchase of this product conveys to the buyer the limited, non-transferable right to use the purchased amount of the product and the components of the product in research conducted by the buyer. BioVinc's products are not available for resale or other commercial uses without a specific agreement from BioVinc LLC.