Caution: For Laboratory Use. A product for research purposes only.

ReninSense 680 FAST ™

Product Number: NEV11079

DESCRIPTION: ReninSense 680 FAST™ is a member of a family of activatable fluorescent imaging agents comprising a novel architecture, termed F.A.S.T. (Fluorescent Activatable Sensor Technology), that confers an improved pharmacokinetic profile with a broader range of early imaging timepoints. This architecture also offers higher target specific signal with reduced background.

ReninSense 680 FAST is a Renin activatable agent that is optically silent upon injection and produces fluorescent signal after cleavage by renin produced in the kidneys. The Renin-Angiotensin System (RAS) is the hormone system involved in regulating blood pressure and fluid balance in the body. *ReninSense 680 FAST* is recognized and activated by rodent forms of renin in preclinical animal models. *ReninSense 680 FAST* may be used to monitor abnormal RAS function, progression of disease and the efficacy of therapeutic treatment in disorders such as hypertension and cardiovascular disease and some neurological diseases.

MATERIAL   *(Needs to be reconstituted)*

CONTENTS: Each vial contains 24 nmol of *ReninSense 680 FAST* in dry solid form. *ReninSense 680 FAST* has been filtered through a 0.2 μm filter prior to drying. Reconstitute *ReninSense 680 FAST* with 1.2 mL of 1 x PBS before injecting into animals. The packaged material provides sufficient reagent for imaging approximately 10 mice (weighing ~25 grams each) when using the recommended dose of 2 nmol (100 μL) of *ReninSense 680 FAST* per mouse.

PROPERTIES: The physical characteristics of *ReninSense 680 FAST* can be found in **Table 1 and Figure 1.**

STORAGE & HANDLING:
- Upon receipt, *ReninSense 680 FAST* should be **STORED AT -20 ºC AND PROTECTED FROM LIGHT**.
- When stored and handled properly, *ReninSense 680 FAST* is stable for up to twelve months in dry solid form.
- Before opening the vial check to ensure that all of the solid material is at the bottom of the vial.

Table 1. *ReninSense 680 FAST Characteristics*

Property	Specification
MW	43,000 g mol^{-1}
Fluorescence[1]	
• Excitation	675 nm
• Emission	693 nm
Absorbance	675 nm (activated)
Purity[2]	>95 %
Appearance	Dark Blue Solid

1. Absorbance and fluorescence maxima of *ReninSense 680 FAST* in 1x PBS.
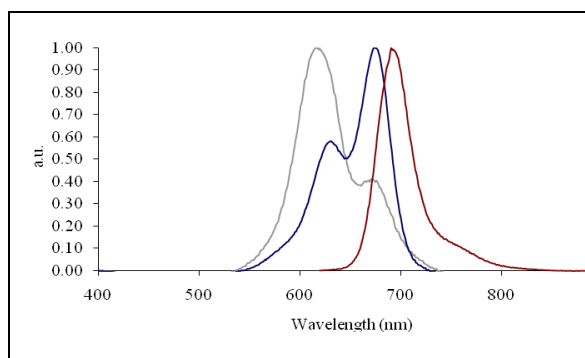2. As determined by RP-HPLC and measuring absorbance at 675 nm.

Figure 1. Normalized absorbance (grey), excitation (blue) and fluorescence emission (red) spectra of *ReninSense 680 FAST* in 1x PBS.

- After reconstituting with PBS, gently swirl the solution to ensure that the solid is fully in solution.
- **Once reconstituted with 1 x PBS, the solution is stable up to 7 days when stored at 2-8 ºC and protected from light**.

IN VIVO IMAGING AND APPLICATIONS:

- Renin is a peptide hormone secreted by the kidney from granular cells of the juxtaglomerular apparatus and is the first step in a cascade of events that lead to increased blood pressure. Renin is upregulated in response to decrease in arterial blood pressure, decrease in plasma sodium chloride levels, or sympathetic nervous system activity. Renin cleaves angiotensinogen (produced in the liver) to yield angiotensin I, which is further converted to angiotensin II by angiotensin-converting enzyme (ACE).   Angiotensin II constricts blood vessels, increases aldosterone secretion from the adrenals, and stimulates a thirst reflex, each leading to an increase in blood pressure. Kidney imaging of *ReninSense 680 FAST* can detect 3- to 4-fold increases in kidney renin activity in response to 2-3 days of low salt diet in C57BL/6 mice.

- The generally recommended procedure for *in vivo* imaging with *ReninSense 680 FAST* is administration via intravenous injection and imaging **24 hours post injection.** Earlier and later timepoints may be appropriate for some disease models, and the optimal imaging timepoint for any application should be determined empirically.

- *ReninSense 680 FAST* enables imaging of Renin activity in applications including:
    - cardiovascular disease,
    - certain models of impaired renal function,
    - chronic hyperthyroidism,
    - hypertension, and
    - some neurological diseases.

NOTES:

- *PerkinElmer's ReninSense 680 FAST* is intended for research purposes only and is not for human use. It must be used by or directly under the supervision of a technically qualified individual experienced in handling potentially hazardous materials. Please read the Material Safety Data Sheet (MSDS) provided for this product.

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