

## Product Information

# SIGMAFAST™ Combined Protease and Phosphatase Inhibitor Tablets, EDTA-free

For General Use, A Broad-Spectrum Inhibitor Cocktail

## S8850

### Product Description

Phosphorylation is a post-translational modification which regulates enzyme activity and triggers cellular signaling.<sup>1,2</sup> Additionally, cells contain multiple phosphatases which can dephosphorylate the target proteins.<sup>1-3</sup> To study this key biological process, a broad-spectrum inhibitor cocktail is added to cell extracts to preserve the integrity of phosphorylated proteins.<sup>3,4</sup> Endogenous proteases are also present during cell lysis which could lead to proteolytic degradation of proteins. Inclusion of protease inhibitors prevents any proteins of interest from being degraded in this fashion.

The SIGMAFAST™ Combined Protease and Phosphatase Inhibitor Tablet (SIGMAFAST™ Inhibitor Tablet), is an optimized mixture of water-soluble inhibitors with a broad specificity for the inhibition of multiple phosphatases (Serine, Tyrosine, Threonine, Acid & Alkaline Phosphatases) and proteases (Cysteine, Serine, Aspartic acid, Aminopeptidases and Metalloproteases). This tablet is EDTA-free.

### Components

Each SIGMAFAST™ Inhibitor Tablet can be used to prepare 20 mL of 1X solution, which contains the following inhibitors:

#### Phosphatase Inhibitors

- Bromolevamisole oxalate: Potent alkaline phosphatase inhibitor<sup>5</sup>
- Okadaic acid: Potent inhibitor of several types of serine and threonine protein phosphatases<sup>6</sup>
- Sodium fluoride: Irreversible inhibitor of serine, threonine, and acid phosphatase<sup>7,8</sup>
- Sodium orthovanadate: Irreversible inhibitor of tyrosine and alkaline phosphatases<sup>9,10</sup>

#### Protease Inhibitors

- Antipain: Reversible inhibitor of serine & cysteine and some trypsin-like serine proteases<sup>11</sup>
- Aprotinin: Reversible inhibitor of trypsin and human leukocyte elastase<sup>12</sup>
- Bestatin: Reversible inhibitor of aminopeptidases, such as leucine and alanyl aminopeptidases<sup>13</sup>
- Elastatinal: Potent, irreversible inhibitor of elastase (Group of serine proteases)<sup>14</sup>
- Leupeptin: Reversible inhibitor of both serine and cysteine proteases, such as plasmin, trypsinogen, urokinase, and kallikrein<sup>15</sup>
- Nafamostat mesylate: Serine protease inhibitor<sup>16</sup>
- Phosphoramidon: Specific metalloprotease thermolysin inhibitor<sup>17</sup>
- Pepstatin A: Reversible inhibitor of aspartic acid proteases<sup>18</sup>

## Precautions and Disclaimer

This product is for R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

## Storage/Stability

- The tablets are stable as supplied for approximately 4 years at 2-8 °C.
- Reconstituted SIGMAFAST™ Inhibitor solution (1X or 10X) is stable for approximately 2 weeks at 2-8 °C.
- It is not recommended to freeze reconstituted solutions (1X or 10X), as some material may precipitate.

## Preparation Instructions

One SIGMAFAST™ Combined Protease and Phosphatase Inhibitor Tablet generates 20 mL of 1X protease and phosphatase inhibitor solution. Each tablet can be reconstituted in either water or cell lysis buffer. Alternatively, each tablet can be reconstituted in a 2 mL volume to generate a 10X stock solution, then diluted as needed.

Concentrations greater than 1X may appear hazy. This will not affect the performance of the inhibitors. These solutions should be mixed until uniformly suspended.

## References

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