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## MATERIAL DATA SHEET

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### UbcH Enzyme Set

Cat. # K-980

**UbcH2** - This E2 enzyme encodes for the human homolog of the yeast DNA repair gene RAD6, which is induced by DNA damaging agents. UbcH2 can conjugate ubiquitin to histone H2A in an E3-independent manner *in vitro*, and is essential for the multi-ubiquitination and degradation of N-end rule substrates. Additionally, UbcH2 may have a role in sepsis-induced muscle protein proteolysis and cancer-induced cachexia.

**UbcH3** - UbcH3 plays an essential role in the progression of cells from the G1 to S phase of the cell division cycle. One pathway (requiring Cdc34) initiates DNA replication by degrading a CDK (cyclin-dependent kinase) inhibitor. The second pathway, involves the anaphase-promoting complex (APC) initiates chromosome segregation and exit from mitosis by degrading anaphase inhibitors and mitotic cyclins.

**UbcH5s** - UbcH5 enzymes are human homologs of the yeast UBC4/5 family and play many important regulatory roles in inflammation and cancer. UbcH5a mediates the degradation of a myriad of short-lived regulatory proteins (such as p53 in the presence of E6/E6-AP or MDM2, c-Fos, IκBα, p105) and abnormal proteins. UbcH5a has 89% and 88% sequence identity with UbcH5b and UbcH5c respectively

**UbcH6** - UbcH6 mediates the selective degradation of short-lived and abnormal proteins. The enzyme has high similarity to UbcH5 E2 subfamily, but it does not participate in HECT-domain mediated events.

**UbcH7** - UbcH7 mediates the selective degradation of short-lived and abnormal proteins and is highly homologous to UbcH5. UbcH7 interacts with the HECT domain of E6-AP and the RING domain of c-Cbl, and can mediate the multi-ubiquitination of many different types of protein substrates.

**UbcH8** - UbcH8 can be charged with both ubiquitin and ISG15 via the activities of the respective E1<sup>Ub</sup> and E1<sup>ISG15</sup> enzymes. UbcH8 is highly homologous to UbcH7, and functions in ubiquitin conjugation reactions and in HECT E3 (such as E6AP) and RING-FINGER (such as Parkin) protein mediated events.

**UbcH10** - UbcH10 is an essential mediator of mitotic destruction events and cell cycle progression. It catalyzes the destruction of cyclins A and B in conjunction with the anaphase-promoting complex. This activity is essential at the end of mitosis for the inactivation of their partner kinase Cdc2 and exit from mitosis into G1 of the next cell cycle.

**UbcH13 (heterocomplex with Uev1a)** - UbcH13 (a canonical E2) and Uev1a (a protein similar to E2s in sequence but lacking an active site cysteine, this is the human homolog of the yeast Mms2 protein). This complex functions in the assembly of K63-linked poly-ubiquitin chains which have a role in a variety of processes such as DNA repair, endocytosis, polysome stability and signal transduction pathways.

## Product Information

	<u>Protein</u>	<u>MW</u>	<u>Concentration</u>	<u>Quantity</u>
<b>Supplied:</b>	1. UbcH2	17 kDa	0.4 mg/ml	10 µg
	2. His <sub>6</sub> -UbcH3	22 kDa	0.4 mg/ml	10 µg
	3. UbcH5a	17 kDa	0.4 mg/ml	10 µg
	4. UbcH5b	17 kDa	0.4 mg/ml	10 µg
	5. UbcH5c	17 kDa	0.4 mg/ml	10 µg
	6. His <sub>6</sub> -UbcH6	22 kDa	0.4 mg/ml	10 µg
	7. UbcH7	18 kDa	0.4 mg/ml	10 µg
	7. UbcH8	18 kDa	0.4 mg/ml	10 µg
	8. His <sub>6</sub> -UbcH10	20 kDa	0.4 mg/ml	10 µg
	7. His <sub>6</sub> -UbcH13 <sub>complex</sub>	43 kDa	0.4 mg/ml	10 µg
<b>Stock:</b>	In 50mM HEPES pH 7.8, 50mM NaCl, 10% glycerol, 1 mM DTT.			
<b>Purity:</b>	> 95 % by SDS-PAGE			

## Use & Storage

**Use:** Typical enzyme concentration to support conjugation *in vitro* is 100 nM-1 µM depending on conditions.

**Storage:** Store at -80°C. Avoid multiple freeze/thaw cycles.

## Literature

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