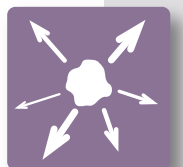
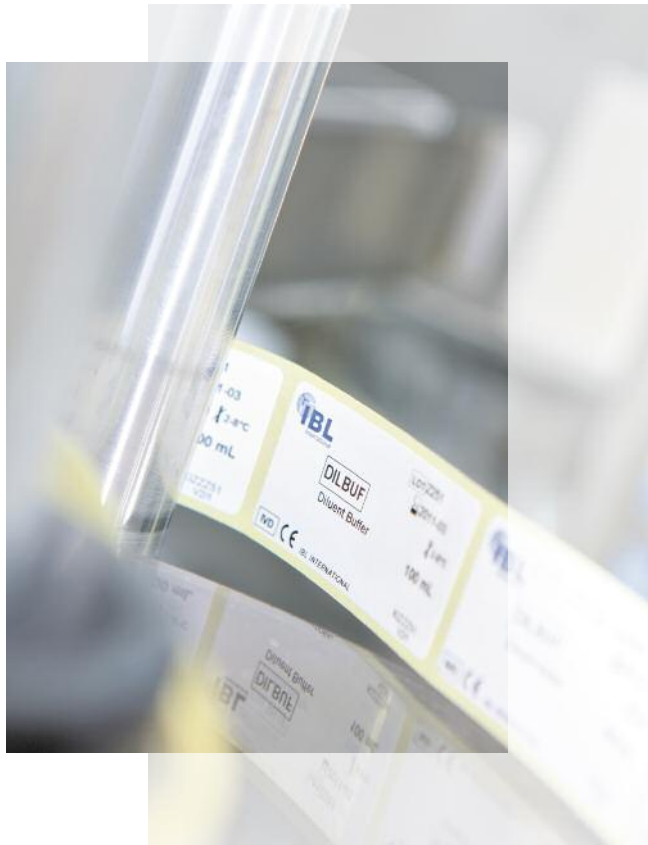


HMGB1 – in the focus of medical research

A two-sided protein involved
in a lot of diseases



HMGB1 – High Mobility Group Box1 Protein

HMGB1 is a protein that is normally present in the nucleus and cytoplasm of mammalian cells, and is involved in gene transcription as a chromatin binder. It can then either be released passively as a soluble molecule from necrotic cells, or may be actively secreted from inflammatory cells. Thus, HMGB1 acts as a cytokine, exhibiting similar pro-inflammatory effects as do TNF- α and IL-6. Any disease coping with dying, necrotic cells will therefore be involved with HMGB1 in one of these two cases.



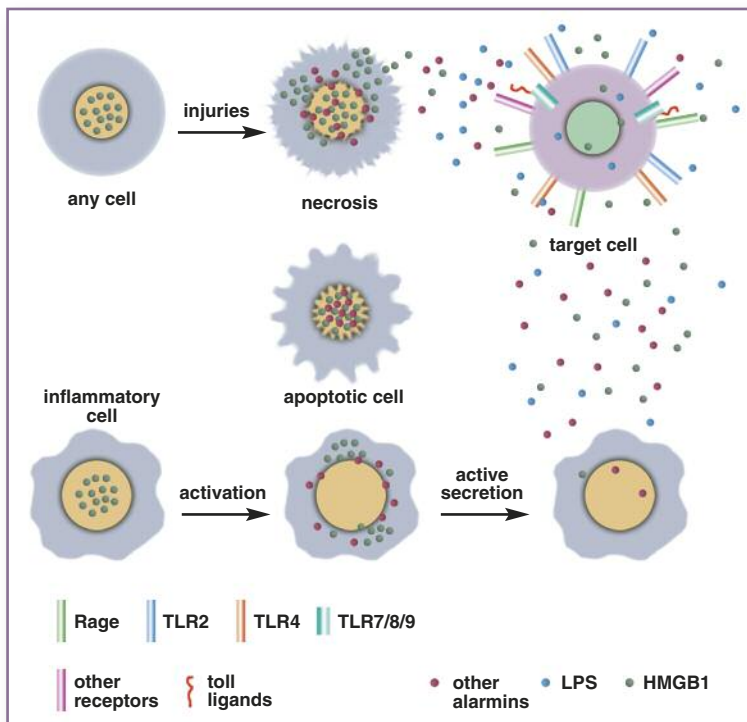
- As of August 2009, over 1600 scientific articles were listed in PubMed.
- Every year 150 to 200 new articles are published.

Can HMGB1 be measured? Of course!

- IBL offers the only commercial ELISA worldwide for measuring HMGB1; it has already been used in far more than 100 publications (literature on request).



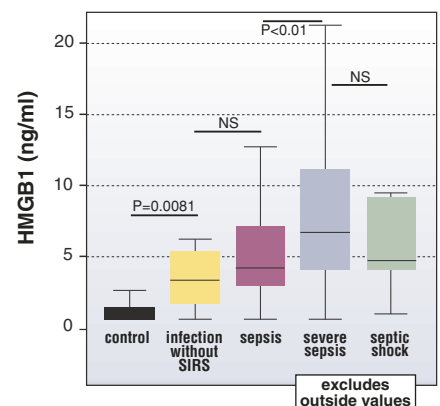
HMGB1 release mechanisms



According to Erlandsson-Harris H. et. al., EMBO Reports 2006; 8: 774-778

HMGB1 in sepsis & shock

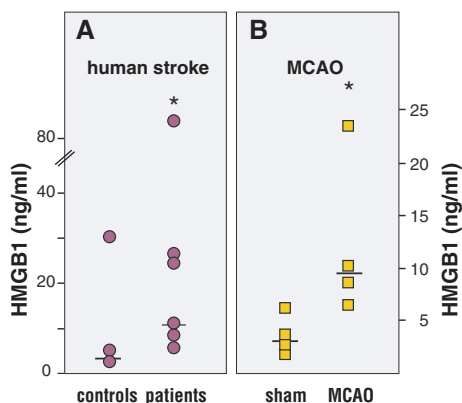
It has been shown as early as 1999 that HMGB1 acts as a late mediator in septic shock. In experiments on animals, inhibiting HMGB1 even in this late phase significantly enhanced the survival rate for rodents.



According to Gaini et. al., Crit Care 2007; 11:R76

HMGB1 and stroke

Several publications have demonstrated that HMGB1 levels in stroke patients are elevated in serum as well as in plasma. This is underlined by research results showing that HMGB1 is released from ischemic brain tissue in mouse models.



According to Muhammad S. et al., J Neurosci 2008; 28(46):12023-31.

HMGB1 and autophagy

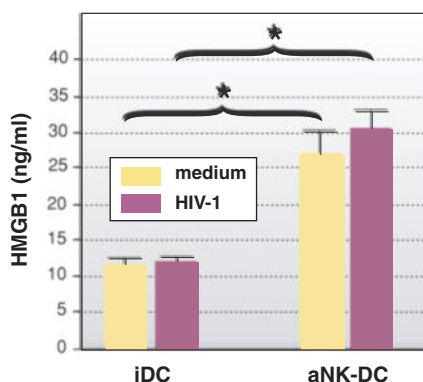
It has been shown that HMGB1 is translocated and released from cells through autophagic stimuli. In a cell model, it was shown that autophagic inhibitors block the translocation and release of HMGB1.

HMGB1 in cancer

An acceleration of HMGB1 expression in several cancer tissues has been documented. In some cancer types, the HMGB1 levels correlate with metastatic activity.

HMGB1 in viral infections (i.e. HIV)

Several researchers have indicated elevated levels of HMGB1 in viral infections, especially HIV. For HIV, HMGB1 seems to be a molecule necessary for cell maturation and thus for viral replication.



iDC = immature dendritic cell, aNK-DC = activated natural killer cells in cross-talk with dendritic cells. According to Saïdi H. et al., PLoS One 2008; 3(10):e3601.

These small excerpts represent only a very small portion of the literature dealing with HMGB1 and various diseases. There are many more examples.

Please do not hesitate to contact us if you have any further questions:

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