



## Aquaporin water channels in health and disease

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Aquaporin water channels facilitate transepithelial water transport and are pivotal for regulation of body water balance.

This group has two major focus areas:

### **Renal AQP2:**

The renal water channel aquaporin-2 (AQP2) regulates urine concentration in response to the antidiuretic hormone arginine vasopressin (AVP). AQP2 dysregulation is pivotal in multiple diseases associated with body water balance disorder, including chronic kidney disease (CKD), nephrogenic diabetes insipidus (NDI) and congestive heart failure (CHF).

### **AQPs in cancer:**

Puzzling, increased levels of AQP1, AQP3 and AQP5 were recently found to be pivotal in cancer cell metastasis making them putative prognostic biomarkers and therapeutic targets.

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## Projects and techniques

### **Renal AQP2:**

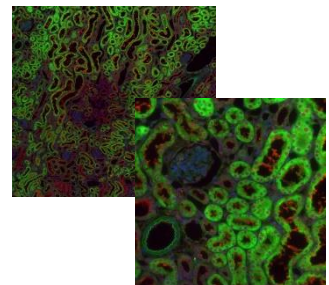
Effect of acute pyelonephritis on renal water handling  
AQP2 subcellular regulation.

### **AQPs in cancer:**

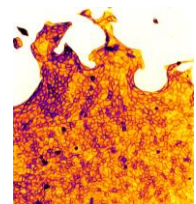
The effects of AQPs on cancer cell migration and cell:cell  
adhesion.

### **Techniques:**

We are experts in using *in vitro* cell culture models  
combined with bioimaging of both fixed and live cells.  
Super resolution imaging.  
Biochemistry.  
Molecular biology.  
Immunohistochemistry.



Stained kidney section



Migrating cell monolayer