



## **Urological implant with self regenerative surface for reduced biofilm formation, infection and encrustation.**

The present invention relates to a next generation of urological implants, including Foley catheters and urethral stents, with significantly lower rates of biofilm formation, infection and encrustation. By applying micro currents a self regenerative surface can be achieved which actively removes the conditioning film and significantly reduces bacterial adherence, growth and survival.

- Keywords** Urological implant, Foley catheters, Double-J stents, prostatic stents, nephrostomy catheters, biofilm formation, infection, encrustation
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- Reference** Electrical micro current to prevent conditioning film and bacterial adhesion to urological stents (Urological Research, epub 2010 Aug 5)
- Background** Long-term catheters remain a significant clinical problem in urology due to the high rate of bacterial colonization, infection and encrustation. Minutes after insertion of a catheter, deposition of host urinary components onto the catheter surface form a conditioning film actively supporting the bacterial adhesion process. Approximately half of all patients with long term indwelling catheters will suffer complications for encrustation and blockage by bacterial films over time. Despite the knowledge of adherence and growth of bacteria, no available stent material and surface coating sufficiently resists the adherence of bacteria.
- Invention** It has been found in a feasibility study applying a standardized in vitro model that bacterial growth and adhesion as well as encrustation can be effectively reduced by the application of a suitable current and voltage. From those results, it is straightforward to design a prototype of a next generation catheter with lower rates of biofilm formation, infection and encrustation.
- Fields of Use** This technology could potentially be useful for all inserted urologic devices including Foley catheters, Double-J stents, prostatic stents and nephrostomy catheters..
- Patent Status** Patent filed
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