50 years of Sensodyne® innovation 1961-2011
Leading the way with Sensodyne

For the last 50 years Sensodyne has been at the forefront of scientific innovation into the aetiology, treatment and prevention of dentine hypersensitivity and erosive tooth wear. In January 2011 GlaxoSmithKline celebrated 50 Years of Sensodyne innovation by hosting a 50th anniversary symposium in Madrid, Spain. Experts in the field of dentistry and dental research discussed the past, present and most importantly the future of oral health, each presenting a prospective from their own field of specialism.

Principal Speakers
The principal speakers at the symposia included Professor Francis Hughes1 Professor J.M ('bob') ten Cate2 Professor David Bartlett3 and Professor Martin Addy4.

All Speakers agreed that dentistry had come a long way in 50 years however good oral health for all is a challenge and can only be achieved by linking treatment to patient needs. “Research into genetic profiling holds many possibilities.” Professor Francis Hughes1.

Oral Health prevention, a relatively neglected area of global health, is now key and commitment is needed by policy makers to prevent chronic diseases. “The effectiveness and contribution of fluoride toothpastes are undisputed, however in the future priorities should include ‘Better’ or ‘Smarter’ products that improve compliance, availability and affordability. Everyone can learn to brush—however a paradigm shift in prevention needs to occur, as caries prevention is very dependent on fluoride.” Professor J.M ('bob') ten Cate2

“In future there will be reduced government funding for dentistry practice and research, therefore there is a need for Industry and University collaboration with research focused on clinical needs and realistic outcomes. Prevention of erosion needs changes to formulation of toothpastes which actively protect enamel and dentine from acids”. Professor David Bartlett3

“Traditionally there has been a lack of understanding of the aetiology of hypersensitivity and gingival recession. For dentists to offer advice they need to be educated and Industry has a role”. Professor Martin Addy4 . Professor Addy called for further research that is fully scientifically founded. "Many clinical trials on treatments for Dentine Hypersensitivity belong in the realms of testimonials. Areas for improvement include Objective Evaluation Criteria, better controls and evidence of stimulus response and therapeutic action. There is a need to be able to really magnify and visualise Dentine either as a replica or in-situ”.

The speakers all agreed industry has a key role to play in the continuing research and development of preventative dental care.

Science at the heart and core of Sensodyne success for 50 years. Through collaboration with the dental health care professional and by researching patient’s needs, truly significant advances have been made. Sensodyne was first made available in 1961 by Block Drug. Since GlaxoSmithKline’s acquisition of the brand it has rapidly grown globally and become the dentists sensitivity toothpaste of choice in many markets.

Expanding expertise GlaxoSmithKline’s significant investment in Sensodyne includes employing experts not only in dentistry but also in fields outside to expand the understanding of dentine hypersensitivity. Linking aetiology, research and patient needs has resulted in toothpastes that deliver specific patient benefits.

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Ground Breaking Research into the management of Dentine hypersensitivity

Up until now pain measurement was subjective and could be influenced by a number of variables. Research for an objective measure for pain using fMRI (functional Magnetic Resonance Imaging) to map brain activity was presented by Dr Ashley Barlow, GSK Principal Clinical Scientist in collaboration with the University of Zurich using a multi-discipline team including experts in medical, clinical, engineering, psychology, statistics and data management. Future GSK investment into pain measurement will bring advances into understanding dentine hypersensitivity and hence more targeted modes of treatment and prevention.

Novamin innovative Technology

In early 2011 GlaxoSmithKline will be launching the world’s first daily fluoride toothpaste with Novamin, Sensodyne Repair and Protect, a development that clearly illustrates why Sensodyne has become synonymous with dentine hypersensitivity.

Novamin, advanced calcium phosphate technology, employs the same patented bioactive material used in advanced bone regeneration techniques(7,8). It acts as a reservoir to build a new reparative layer over exposed dentine and within the tubules. This layer has a similar chemical composition to hydroxyapatite mimicking the tooth’s natural composition and strongly binding in the collagen in dentine(14-16).

Innovative use of the Electron Microscope

Dr Jonathan Earl, Principal Scientist Sensodyne, using his expertise in material science and engineering has applied electron microscopy techniques to the visualisation & characterisation of the tooth structure and how treatments work in vitro.

This work was carried out in conjunction with UK universities Cambridge, Leeds and Manchester, and uses various methods including, Scanning Transmission Electron Microscopy (STEM), Environmental Scanning Electron Microscopy (ESEM) and Focussed Ion Beam Scanning Electron Microscopy (FIB SEM).

The research shows the transformation of Novamin in saliva - changes are not only seen in structure but can also be measured in changes in chemical composition. This dynamic reparative layer is harder than natural dentine (15,16) and it is able to withstand daily oral challenges such as tooth brush abrasion, and dietary acid challenges (9,15,16,17). With regular twice daily use, it helps maintain lasting protection to deliver clinically proven relief from the pain of dentine hypersensitivity (18,19,20).

GlaxoSmithKline-Dentsply Collaboration

GlaxoSmithKline are working with DENTSPLY, a global leader in professional dental products, to develop the new Sensodyne NUPRO Professional Range also utilising NovaMin® technology. The in–Office Prophy Paste is the only prophylaxis product containing the unique patented ingredient, NovaMin®. Dr Teresa Layer, Vice President, Oral Healthcare R&D is hugely excited about forging a relationship with Dentsply to work on taking the brand forward.

50 years of Sensodyne Expertise

Sensodyne’s strengths lie in its dental and clinical heritage. GlaxoSmithKline acknowledges it owes a lot to all those who have worked on Sensodyne in the last 50 years both internally and externally. “The next 50 years will be even more exciting for GSK Sensodyne with continued investment into leadership in oral care through science. We are living in exponential times” Teresa Layer, Vice President, Oral Healthcare R&D.

Reference

12. GSK data on file.