

cochlear from the ten most differently bi-regulated candidate genes were chosen for further q-PCR validation. As a result, *Fcer1g*, *Nnmt*, *Lars2* (up-regulated) and *Cuedc1* (down-regulated) genes were proved to be differentially expressed between KI and WT group.

*Conclusion:* GJB2 p.V37I KI mice presented progressive late-onset hearing loss with depletion in numbers of hair cell. *Fcer1g*, *Nnmt*, *Lars2* and *Cuedc1* genes were proved to be differentially expressed between KI and WT group.

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## ID: IP025

### An ear microsurgery trainer for low-resource settings

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#### Learning Objectives

*Introduction:* The World Health Organisation has identified chronic suppurative otitis media as a neglected condition affecting up to 330 million people worldwide, the burden of the disease located in impoverished countries. There are huge socioeconomic implications that support any progress towards the correct management of otorrhoea. The recent Lancet Commission on Global Surgery highlighted the need for NGOs to hardwire training into their programmes and that low cost simulation would be one avenue by which this might be achieved. With this in mind, we aimed to develop an ear surgery simulator appropriate for training in resource poor settings and to demonstrate its effectiveness in facilitating acquisition of headlight and microsurgical skills necessary to perform procedures via the ear canal, safely.

*Methods:* A low-fidelity ear trainer was designed to emulate the ear canal and middle ear space. Face validity was assessed via questionnaires. Six tasks were developed, from headlight foreign body removal through to microscope-orientated tasks of foreign body removal, ventilation tube insertion, tympanomeatal flap raising, myringoplasty, and middle ear manipulation skills.

Novices (medical students), those with limited otology experience (junior ENT doctors) and experts (consultant otologists) were video-recorded performing each task. Videos were scored by a blinded observer, using a validated measurement tool and specially adapted task-specific checklist, in order to assess construct validity.

*Results:* Face validity results confirmed that ET was a realistic representation of the ear. Construct validity results showed a statistically significant trend with experts

performing better than those with limited experience performing better than novices.

*Conclusion:* This study validates ET as a useful training tool to assess headlight and microsurgical skills required to perform otologic procedures. Further testing is now planned in the developing world setting.

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### Bioactive glass for obliteration after subtotal petrosectomy

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*Learning Objectives:* Bioactive glass granules can be used as an alternative filler material for obliteration after subtotal petrosectomy.

*Introduction:* Subtotal petrosectomy for chronic suppurative otitis media requires obliteration of the mastoid cavity and middle ear space. Generally, abdominal fat is used for this purpose. A considerable risk of using fat is infection, which might require revision surgery. The use of bioactive glass granules seems an attractive alternative since the granules have antibacterial properties.

*Methods:* A 59 year old male patient with a history of chronic suppurative otitis media of the right ear, complicated by a sudden profound perceptible hearing loss was already treated with a mastoidectomy 6 years ago and thereafter extensively treated conservatively. Because of recurrent chronic otorrhoea and pain we decided to perform a subtotal petrosectomy with blind sac closure of the external ear canal, closure of the Eustachian tube, and obliteration of the cavity with S53P4 bioactive glass granules (BonAlive Biomaterials Ltd., Turku, Finland). A wound drain was kept in place for 7 days.

*Results:* No complications occurred peri-operatively and a dry ear was obtained with complete relief of pain. Duration of follow-up is now 6 months and no late adverse events were observed.

*Conclusions:* S53P4 bioactive glass granules are feasible to use for obliteration after subtotal petrosectomy. Elimination of chronic suppurative otitis media can be achieved with this technique. Bioactive granules might be an alternative for abdominal fat, which has a risk of infection.

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### Long-Term Hearing and Functional Outcomes and Complications after Ossiculoplasty