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Inhibitory effect of amniotic membrane proteins in HSP60 gene expression in HepG-2 Hepatocarcinoma cell line

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Introduction: In recent years HSP90 has been studied intensively as a therapeutic target. Hsp90 is an abundant protein in mammalian cells which is responsible for the consolidation of a many of cellular pathways and processes. Human amniotic membrane (hAM) has recently been considered as an upcoming anti-cancer therapy. The aim of this study was investigation the effect of hAMP on the expression levels of HSP60 gene in HepG-2 Hepatocarcinoma cell line.

Material and methods: hAMPE were mechanically obtained, after quantification of proteins in hAMPE, their effect on the expression levels of HSP60 gene in HepG-2 Hepatocarcinoma cell line was evaluated. For each experiment, cells were incubated with 1 lg/lL of hAMPE. The extraction of total cellular RNA, cDNA synthesis and Real Time PCR was done for all of samples. We used western blot analysis to elucidate the effect of hAMP on the level of Hsp60 protein expression. Statistical analysis was performed with SPSS software. Statistically comparisons were between the control group and treatment.

Results: The results showed have an effective role in decrease of Hsp-60 expression. Our results demonstrated hAMPE had more than 68% inhibition effects on the Hsp-60 expression. Western blot results show Hsp60 expression had been decreased about 56% ($P<0.05$).

Conclusions: According to results, it would appear that inhibition of HSP60 by hAMPE can provide therapeutic opportunities in the field of cancer treatment. We suggest that further studies should attempt *in vivo* experiments on laboratory animals to investigate the efficacy of these proteins in biological environments.

Morphine-6-glucuronide and its glycoside analogues: Potential for *in vivo* pain relief

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It has been known for almost fifty years that morphine-6-glucuronide, the minor human metabolite of morphine, is not merely a detoxifying metabolite, but an analgesic with similar potency to morphine itself. Importantly, M6G also exhibits reduced side effects including nausea and respiratory depression. In this presentation, a medicinal chemist's view of the current state of M6G and its known glycoside analogues will be given. A critical summary of known clinical trial data with M6G will first be given. Efficient chemical synthesis of M6G, free of heavy metals used in the original synthesis, is essential to advance this field. We developed syntheses employing Lewis acid catalysed glycosylation of a suitable 3-protected morphine to accomplish this goal; enzymatic approaches are also feasible. As well as M6G itself, we prepared a number of analogues including variation of the carbohydrate residue, N-substituent and saturation of the 7,8-double bond. Many of these had activity comparable to morphine or M6G, as measured by μ-receptor binding and hotplate assay. Since M6G continues to attract considerable interest from clinicians as a pain relief agent we believe this will be a timely summary of both M6G itself and a number of close analogues that await full evaluation.

Biography

Andrew Stachulski, a postgraduate student of Professor Sir Alan Battersby, received his PhD at Cambridge in 1974. After postdoctoral fellowships at the MRC and Oxford, he worked in antibiotic research at Smith Kline Beecham (1978–1991). He then moved to Ultrafine Chemicals (Manchester), becoming research manager. In 2001 he moved to the University of Liverpool, becoming Senior Lecturer (2003), and has remained there apart from a Research Fellowship at the University of Oxford (2010–2011). He has been strongly involved with carbohydrates, especially glucuronides, for over twenty years. He is an FRSC (1998) and has a total of about 100 publications.