structurally, this latter type of lesion contained cells with numerous ribosomes, abundant rough endoplasmic reticulum and canaliculi lined by villi. Such features are not shared by the solid cellular areas of the HX53 xenograft which resemble "seminoma cells" being regular in outline with rounded cell membranes and rare desmosomes and microvilli. The cytoplasm is "empty" with sparse organelles (including rough endoplasmic reticulum) apart from ribosomes, and prominent areas of glycogen. These appearances then are totally unlike hepatic cells. Moreover, AFP is absent from the solid area of the xenograft but present in the hepatoid yolk sac lesions.

Since our paper was written, the HX53 xenograft has been passaged repeatedly with similar results. It has also been established in tissue culture for 14 passages and preliminary cloning studies have shown the evolution of two cell types. Moreover, it has been found to produce fibronectin of the yolk sac type.

The Boston group have only published their findings to date in abstract form so that we are unable to compare the morphology of "hepatic" lesions. However, we continue at present to believe that a lesion morphologically resembling anaplastic seminoma is in reality a solid form of yolk sac carcinoma which may differentiate to produce AFP and bear the typical light and ultrastructural features of a yolk sac carcinoma. This seems a more feasible explanation than the continuing belief in a "mixed germ cell tumour" when such appearances are seen.

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Reference

A simple washing technique for solid-phase radioimmunoassays and enzyme-linked immunosorbent assays

The solid-phase radioimmunoassays and enzyme-linked immunosorbent assays (ELISA) utilise various forms of plastic solid-phase supports. Among currently available plastic solid-phase supports, the 96-well-microplates are perhaps most widely used for microassays, especially for ELISA (known as microplate ELISA or micro-ELISA). The usual ELISA procedure includes three or four washing steps, each of which consists of multiple intermittent dispensing and aspirating of the washing solution. Even with the use of semiautomated instruments, the washing is the most tedious part of the procedure. This letter describes a simple washing technique for such procedures utilising the previously described through-passage receptacles (TPR) as the solid-phase support.

The TPR is made of polystyrene or other plastics. It has an upper portion, which serves as a funnel, and a lower portion, which has fin-like structures arising from the wall producing a large surface area (3.7 cm²) relative to the space (0.1 ml). Because of surface tension, the lower portion of the TPR retains approximately 0.1 ml of water against gravity. To facilitate washing, the TPR has a hole at the bottom. Twenty-four TPRs are assembled into a newly designed tray (Fig. 1). For simultaneous washing of the TPRs in a tray, I designed a 6 x 8.5 x 5 cm moulded plastic box ("wash box") having 24 holes (0.1 cm diameter) with short conical outlets at the bottom (Fig. 2). When the "wash box" is filled with water, approximately 10 ml of water flow through each hole for 30 seconds. The water drips from the conical outlets and each water drop is approximately 0.08 ml.

During the test, the bottom holes of the TPRs are sealed before adding 0.1 ml volumes of the specimen or reagent solutions. The sealing is done by pressing the TPR tray onto a sheet of Parafilm (American Can Company, Greenwich, CT, USA) overlying another tray which serves only as a support. After each incubation, the film is detached from the TPR tray, while the tray is in an inverted position. Most of the liquid content of the TPR is retained in the lower portion of the TPR. The inverted position is used to minimise the loss of the liquid during the detachment of the film. For each washing step, the TPR tray is placed on to a waste container and then overlaid by a "wash box," to which a predetermined volume of a washing solution is added (Fig. 3). When the liquid contents of the TPRs are identical, multiple TPR trays can be stacked and washed together using one "wash box" placed on to the top tray. Since only 0.1 ml liquid is retained in the TPR at any point of washing, each drop (0.08 ml) of the washing solution replaces a substantial portion of the TPR content.

Fig. 1 Twenty-four TPRs assembled into a tray.

Fig. 2 Two "wash boxes" with 24 holes at the bottom. The inverted box on the left shows the conical outlets of the holes.

Fig. 3 Simultaneous washing of TPRs. The washing solution is added to a "wash box" placed on to a TPR tray.

Fig. 4 Simultaneous emptying of TPRs by vacuum aspiration.
The efficiency of washing in relation to the volume of the washing solution (PBS-Tween solution) was previously reported. The last drop (0.1 ml) retained in the TPR is aspirated by vacuum via the bottom hole. For simultaneous aspiration of the TPR contents, I utilised an inverted “wash box” glued to a plate to form a closed box with 24 holes and conical outlets facing upwards. The closed box is connected to a standard vacuum aspiration system via a side hole by a tube. The TPRs can thus be simultaneously aspirated by aligning the bottom holes of the TPRs with the conical outlets of the inverted “wash box” (Fig. 4).

The advantages of the new washing technique described in this paper are: (i) it is extremely easy, (ii) it requires only one aspiration at the end, whereas multiple intermittent aspirations are necessary in the conventional methods, (iii) any desired volume of washing solution can be applied without significant additional effort, (iv) it requires no sophisticated equipment and (v) multiple TPR trays can be stacked and washed together, when the liquid contents of the TPRs are identical.

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References

Notices
Benjamin Castleman Award
For the purpose of promoting those high ideals of teaching, practice and research in pathology which Dr Benjamin Castleman imbued in his associates, trainees, and students, the Trustees of Massachusetts General Hospital and Dr Castleman’s former students and colleagues announce the second Benjamin Castleman Award for an outstanding paper in the field of human pathology published in English during the calendar year 1981. The subject may represent any topic in pathology but must be based on human material with emphasis on morphological or anatomical approaches. On papers with multiple authorship, only one author is eligible. The Awardee must be a pathologist or pathologist-in-training who has not yet reached his 40th birthday in 1981. Papers by pathology residents, trainees and fellows are encouraged. The prize will consist of a check for US$1000 and a certificate (travel will not be paid). The Award will be announced and presented at the 71st annual meeting of the United States—Canadian Division of the International Academy of Pathology, 1-5 March, 1982, Boston, Massachusetts.
Nominations should consist of 12 reprints (or preprints) of the manuscript, and a letter attesting to the nominee’s age, and dates and places of residency training, and role in the investigation if other than the first author.
Nominations should be submitted not later than 15 January 1982 to: Sanford I Roth MD, Secretary, The Award Committee, Benjamin Castleman Award, c/o Department of Pathology, University of Arkansas for Medical Sciences, 4301 W Markham, Little Rock, AR 72205, USA.

Society for Cutaneous Ultrastructure Research 9th Annual Meeting
The 9th Annual Meeting of SCUR will be held at the University Medical Centre, Leiden, The Netherlands on 1-3 April, 1982. Dermatologists, biologists and other interested scientific workers are invited to participate. For details and registration forms, please write to: Dr BJ Vermeer, Secretary of the Organising Committee, Department of Dermatology, University Medical Centre, Rijnsburgerweg 10, 2333 AA Leiden, The Netherlands.
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H Park

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