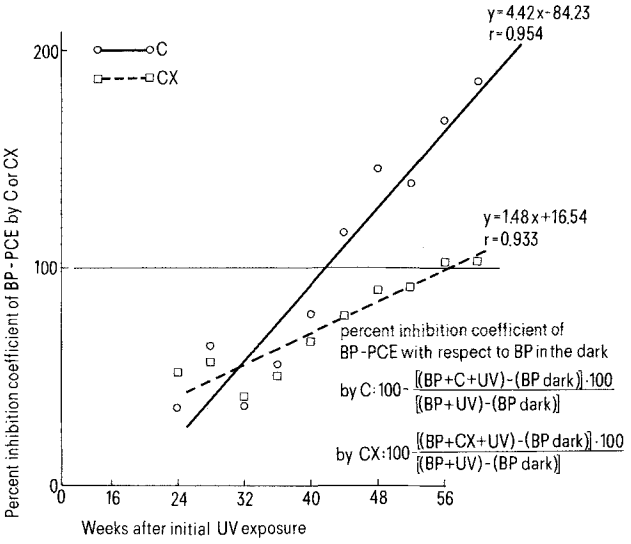

Figure 2. Percent inhibition coefficient of BP-PCE by C and CX against weeks after initial UV exposure. The value 100 indicates the shifting point from the protective to the blocking effects of carotenoids on BP-PCE.

skin cancer prevention for outdoor workers, especially when they use materials such as tar which are well-known photocarcinogens.

Finally, these experiments may support the hypothesis that dietary vitamin A may lead to a reduction of human cancer rates[17]. Our results may also address such stimulating issues as those presented in a review article on dietary β-carotene and human cancer[18], since carotenoids may exert their antitumorigenic action independently of their pro-vitamin A activity[5,8]. Furthermore, attention should be given to carotenoids due to their lack of toxicity in humans; in contrast, retinoids may be harmful to the liver and inactive on skin tumors[5]. Most recent data suggest that C may also exert a therapeutic action in tumor-transplanted mice[19,20].

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Exocrine pancreas: difference in the amylase content of the dorsal and ventral regions[1]

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Summary. The amylase content of the acinar tissue is higher in the splenic region of the rat pancreas containing glucagon-rich islets than in the duodenal region harboring pancreatic polypeptide-rich islets.

The pancreatic gland displays different levels of heterogeneity. 1st, the islets of Langerhans constituting the endocrine pancreas are scattered within the acinar or exocrine tissue[2]. 2nd, in the exocrine pancreas, the cells forming the periinsular halos differ from the teleinsular acinar cells by tinctorial and functional criteria[3]. 3rd, the islets of Langerhans contain at least 4 different types of endocrine cells secreting insulin, glucagon, pancreatic polypeptide and somatostatin, respectively[2]. 4th, 2 distinct populations of islets, rich in glucagon- or pancreatic polypeptide-producing cells are non-randomly located in the dorsal (or splenic) and ventral (or duodenal) pancreatic regions, respectively[2]. These 2 pancreatic regions also differ from one another in their embryogenesis, vascularization and exocrine drainage[2]. The present work shows that, in the rat, the hydrolase content of acinar cells is also different in the dorsal and ventral moieties of the pancreatic gland.

Small pieces of pancreatic tissue (wet wt: 98 ± 3 mg; $n = 36$) removed from the dorsal and ventral pancreatic regions[2] of fed albino rats were homogenized in 1.0 ml of distilled water. The protein[4], amylase, lipase and chymotrypsinogen content[3] of each homogenate was measured by methods described elsewhere.

Relative to the wet weight of tissue, the protein content of

Hydrolase content of the dorsal and ventral pancreatic regions

Hydrolase (U/mg protein)	n	Dorsal region	Ventral region	Dorsal/ventral paired ratio
Amylase	18	213.1± 7.1	173.1± 7.4[a]	1.271±0.076[b]
Lipase	10	287.1±12.9	300.5±16.4	0.967±0.045
Chymotrypsinogen	10	37.7± 2.5	36.3± 2.4	1.045±0.039

Mean values (±SEM) are shown together with the number of individual determinations (n) and significance of differences between the dorsal and ventral regions. [a] $p<0.001$ by group comparison; [b] $p<0.005$ by paired comparison.

the pancreas was not significantly different in the dorsal and ventral regions, respectively, with a mean value of 154±4 µg protein/mg wet wt (n=36). In a 1st set of 10 rats, the lipase and chymotrypsinogen contents were also similar in the dorsal and ventral regions, respectively; the amylase content, however was significantly higher in the dorsal than ventral area ($t=2.223$; $p<0.05$). The latter finding was confirmed in a 2nd set of 8 rats ($t=3.354$; $p<0.005$). The pooled results of these 2 sets of experiments are illustrated in the table (1st line), which indicates that the difference in amylase content between the dorsal and ventral areas was highly significant, whether judged by group or paired comparison. The amylase/lipase or amylase/chymotrypsinogen ratio was also significantly higher in the dorsal than in the ventral region (data not shown).

In several mammalian species, including man, the dorsal and ventral regions of the pancreas can be distinguished from one another by their embryogenesis, topography, vascularization, exocrine drainage and relative richness in 1 or 2 islet types[2,5]. The present work reveals that these 2 regions also differ in their hydrolase content. The amylase content was higher in the dorsal or splenic region containing glucagon-rich islets than in the ventral or duodenal region containing pancreatic polypeptide-rich islets. Since the amylase/lipase or amylase/chymotrypsinogen ratios are not identical in the teleinsular and periinsular acinar tissue[3], it is conceivable, but remains to be proved, that the difference between the dorsal and ventral regions reflects mainly a difference in the hydrolase content of the periinsular halos surrounding glucagon- and pancreatic polypeptide-rich islets, respectively. It would be interesting to investigate whether acinar cells of the dorsal and ventral regions differ from one another in their response to secretagogues. The existence of a dual functional compartmentalization of the acinar tissue - periinsular vs teleinsular and dorsal vs ventral - may help to reconcile the finding of a preferential and rapid release of certain hydrolases[6,7] with the knowledge that pancreatic enzyme secretion results from an 'en masse' discharge of secretory granules[8].

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Fate of rabbit eggs transferred asynchronously to the oviducts or uteri of oestradiol-treated recipients after ovulation[1]

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Summary. The effectiveness of 200 µg oestradiol benzoate (ODB) given at various times following ovulation, to overcome a 3-4-day difference in ovulation times between donor and recipient was examined. In approximately half of the recipients in which the interval from the administration of human chorionic gonadotrophin (hCG) to ODB was 2 days, some of the eggs implanted. With a 4-day interval, however, neither implantations nor degenerate blastocysts were found at autopsy on days 11 or 12 in recipients of either tubal or uterine eggs.

Synchronization of donor and recipient animals is a prerequisite for successful egg transfer. However, the characteristic pattern of changes in the protein components of rabbit uterine secretions can be altered by giving oestrogen systemically in early pregnancy, resulting in so called 'delayed secretion' and retardation of blastocyst development[3,4]. Under such conditions, following the 'asynchronous' transfer of 4-day eggs to 8-day uteri, 38%[5] and 33% (M.C. Chang, unpublished observations) of the transferred eggs developed into foetuses. The use of oestradiol benzoate (ODB) to permit asynchronous egg transfer was further explored by Adams[6], who showed that exogenous ODB acts directly on the endometrium rather than via the corpora lutea and that the early conceptus plays an important role in maintaining the corpora lutea.

The present study examines the survival and continued development of rabbit eggs transferred asynchronously to the oviducts or uteri of recipients, relative to the time of treatment with ODB.

Materials and methods. A total of 45 sexually mature female rabbits was used. They were purchased locally and then caged separately and maintained under conditions described elsewhere[7] for at least 3 weeks prior to use.

Donors. 12 of the does were treated s.c. with a horse anterior pituitary preparation, HPI[8]. At 15-20 h after the last priming injecting 35 IU hCG was injected i.v. followed